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Journal of Electricity

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C. T. HUTCHINSON, Acting Editor

G. W. BARKER, Associate Editor
J. W. OTTERSON, Assistant Editor

G. C. TENNEY, Managing Editor
CLOTILDE GRUNSKY, Contributing Editor

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Smile, and the World Smiles With You

ONCE upon a time, someone said that the eyes were the windows of the soul. This naturally leads to the discussion of a smile as a business as well as a psychological asset. True, the eyes are but one of the several facial components that contribute to the production of a smile, but nevertheless, it is the eyes that give life to the outward sign of warmth of soul beneath.

The smile, from the standpoint of its effect when projected outward as a creator of better public relations, is the underlying theme of an article by R. A. Balzari that will appear as one of the many features in the next issue of the Journal of Electricity. We think that the idea which will be projected in this story is going to take the entire industry by storm. At least, be prepared to smile.

So important is the smile, that a "Smiles" committee is functioning energetically within the Pacific Coast Electrical Association, and the smile idea is being studied with greatest care. There is no gainsaying the fact that one grouch can utterly ruin the day for everyone with whom he comes in contact. It is equally true that the man with a smile can spread cheer and good fellowship wherever he goes.

Support the smile idea. Take one, and use it for your very own. Wear one, winter and summer. Carry it into your home and your daily task, and you will make this world of ours a better place to live in.

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EVERY Bryant Pull Socket has the Bryant Beaded Ball on the end of the chain. It is a distinguishing mark. It identifies a Bryant socket—and is a convenience to you.

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A Message for the New Year

TRADITION has established the beginning of a new year as the time for the interchange of gifts, felicitations, and, most of all, for the adoption of good resolutions for the year to come.

NINETEEN-TWENTY-FOUR lies before us as a book with uncut leaves. It is for us to write the record on its pages as the year unfolds, so that when in retrospect we glance over them after another twelve months have slipped from us forever, we may not be ashamed of our legacy to posterity when we are called to account for the use we have made of our opportunities.

IT is the dream of constructive thinkers in our Western country that the day will come when every branch of the electrical industry will be welded into a harmonious whole. This does not mean the consummation of a physical union, nor the organization of a super-electrical trust, but a spiritual union, based upon tolerance of the rights of the other fellow, a sympathetic understanding of his difficulties, and a willingness to lend a hand to assist him over the rough spots.

GREED, selfishness, bigotry and intolerance have no place in this scheme of things. The little Japanese statuette that "Speaks no evil, sees no evil, hears no evil," might find a place in the hearts of all of us, as a reminder that to build up, rather than to tear down, is the only excuse for our existence.

IT has been said, that since the dawn of civilization the progress of the world has been solely material; that morally, we are still wallowing in the morasses of the early Pleistocene. This is harsh, and like the moralizations of most cynics, is no more than a half truth. Nevertheless, there is much to be done, and we can play our part in doing it, if we will.

LET Faith, Hope, and Charity guide us: Faith in our industry, and in ourselves in piloting it toward the better service of mankind; Hope, that we may not fail to realize in the fullest measure the greatness of our opportunity, and Charity toward our co-workers within the industry; not alms, but Charity, in our sympathetic spirit of helpfulness, regardless of creed, race or condition of servitude. And the greatest of these is Charity.

HAPPY NEW YEAR!

Politicians Feel Power of Customer Ownership

RECOGNITION of the potentialities of holders of hydroelectric utility securities in a municipal election was given by a member of the San Francisco Board of Supervisors at a recent meeting of that body. In the discussion relative to passing an ordinance appropriating $100,000 for the purpose of making a valuation of the lines of the two electric companies serving San Francisco, this particular member of the board voiced his objections. One of his principal reasons for opposing the measure, he stated, was his desire to avoid incurring the ill-will of the 25,000 or more holders of the securities of the two companies who reside in the city. He recognized in these customer owners a power that would make itself felt in the next municipal election.

It should be gratifying to those central stations which have pioneered in the customer ownership movement and which have been firm in the belief that customer ownership was truly public ownership to know that the politicians are beginning to be wary of attacking the electrical industry. It should serve to spur on to greater effort those companies which have adopted the customer ownership plan and at the same time convince those utility executives who have not yet seen the light that customer ownership is a weapon that they cannot afford to overlook.

Arizona and the Development of the Colorado River

THE Colorado River situation continues to hold the interest of those who are vitally concerned with hydroelectric progress in the West. Recent developments have once more brought the questions of flood control, irrigation and power generation to the fore. James B. Girand, who holds a permit on Diamond Creek, has commenced the construction of a dam at that point on the river. Mr. Girand was threatened with the loss of this permit by the refusal of the Arizona Water Commissioner to extend the time limit as he had requested. He forestalled this loss by starting work on his $36,000,000 project.

In this connection, there appears on another page of this issue a statement from Governor Hunt of Arizona, outlining the stand of that state with reference to the development of the river and its objections to the Colorado River compact. One of the chief objections was that Arizona feels that the power resources of the river are its greatest natural resource and consequently the state should derive certain revenue from them. Before a recent meeting of the Federal Power Commission a committee from Arizona proposed that the state develop the power and sell at a profit to whosoever desired to buy. Bonds would be issued to finance the project.

This scheme overlooks one important factor. Arizona needs additional revenue now. Flood control is an immediate necessity. The project which the state proposed is a thing of the future. More than this, instead of receiving additional income, Arizona would be forced to pay interest on the bonds issued until such a time as revenue could be derived from the sale of power.

It would appear that the most logical process for the state to follow is to allow some outsider to step in and develop power immediately. Then the state would derive the income it requires through the routine process of taxation. Rather than oppose Mr. Girand, the state would do well to welcome him with open arms.

A Sales Plan for Every Month in the Year

COOPERATIVE merchandising efforts have increased in number and in the scope of their endeavor. The experiment once tried has worked well and has proved of beneficial application. Results in those sections where the plan has been tried have been so satisfactory that the value of the idea is well established. Sales resulting from cooperative advertising and selling movements have generally exceeded those where no cooperation was employed and dealers who have participated in such movements are enthusiastic for the continued use of similar campaigns.

Inasmuch as no business can be successfully conducted on a day-to-day basis but must instead be guided by a carefully thought out plan of action and, further, inasmuch as the cooperative selling plan has worked so advantageously, it seems that now is the logical time for dealers in electrical merchandise to give heed to the necessity for concerted action in the promotion of their individual businesses. A cooperative advertising and selling plan can be mapped out to cover each of the twelve months of 1924 and featuring some particular class of merchandise for each month, care being taken to feature merchandise with particular reference to its seasonal application. Such a plan will have the decided advantage that all dealers in a given section will be giving prominence to the same class of devices at one time and that added force will be lent to the importance of the device and to its domestic, commercial or industrial application. Precedent has already established that such selling plans are much more successful than those where all dealers are trying to feature different articles. Those who have tried to row a boat know how much easier it is to go with the tide than against it. Why try to stem the tide of cooperative merchandising?

Include Provision for Electric Range in Every New House

CONSIDERABLE criticism has been directed toward members of the electrical industry for their failure to utilize the appliances which they sell and recommend for the use of others. Especially has this been true of the electric range. Suggestions have been made that every executive and every employee should use an electric range in his own home. More than this, special prices have been made to employees and satisfactory purchase arrangements made. Certain manufacturers and central stations have been in the lead in this movement.

Undoubtedly much good has been accomplished in this way and many ranges placed in service. However, it would appear that one important fact in

all such plans and suggestions has been overlooked. The majority of the rank and file of the electrical industry,—and they are the ones to whom such plans have been directed,—live in rented houses or apartments. It cannot be expected that a man living in a rented house will finance the cost of installing an electric range, especially when this cost ranges from $45 to $55. The wiring, once installed, becomes an integral part of the house itself, and cannot be removed, like the range, when the tenant moves.

One solution for this problem lies in convincing the builder of houses and apartments that an important part of the electrical installation is a provision for the installation of an electric range, whether or not such a range is to be a part of the original equipment of the house. Not only would this benefit those members of the industry who live in rented houses and who would like to use an electric range, but it would considerably lessen the sales resistance, for the item of installation cost would be eliminated from the purchase price of the range.

Another Reason for Private Ownership

THERE is no doubt in the minds of those connected with the electrical industry that municipally owned utilities should be under the jurisdiction of utility commissions, just as the privately owned ones are at the present time. In fact, a measure to bring this about in California was defeated two years ago. It is gratifying to note that there are others who have the same feelings about the situation. The following editorial from the Redlands (Calif.) Facts points out one of the injustices of municipal ownership:

> Advocates of municipal ownership of utilities will now have an interesting situation to watch. The cities of Los Angeles, Burbank, Glendale, Azusa, Riverside, Anaheim and Tehachapi purchase electrical power at wholesale from the Edison company and have their own distributing lines. The Railroad Commission has given these cities a reduction of 7½ per cent in power rates. Will this reduction be passed on to the people? The consumers who buy direct from the Edison company get a reduction of 18 per cent. That reduction is direct. Every consumer will find his bills less by that percentage. Will those who get their bills from the supplying municipalities get a direct reduction or will the cities absorb the difference and use the extra money?

A New Venture in Public Relations

PUBLIC relations departments in the central station industry have developed a new slogan. To all intents and purposes, it may be summed up as "Give the Public the Facts." In newspapers, in company bulletins to both stockholders and employees and in letters to consumers the companies are striving to tell their story to the people whom they serve. That they are meeting with success is indicated by the good will which is manifesting itself toward the utilities and by the friends they are making.

On another page in this issue there is described the latest venture in this direction,—a venture on a scale surpassing anything yet attempted by a western utility. The Pacific Gas and Electric Company is placing its story not before employees and stockholders alone, but before both of these groups and its consumers besides. "P. G. and E. Progress," the new monthly organ which has been designed to accomplish this, is to have a circulation of 400,000 copies.

The announcement made by Wigginton E. Creed, president of the company, in the first issue of "Progress," will interest utility executives for it defines a new policy in public relations work. A quotation from this announcement follows:

"The 'P. G. and E. Progress' will be published by the Pacific Gas and Electric Company as a routine of company operation for the mutual benefit of the company and its many, many thousands of customers and owners.

"The aim of the company has been to win the public good will by deserving the public good will.

"To this end, the company has intelligently developed the gas and electric industries to meet the prodigious growth of a vast section of the State of California, and in that work 'Service to the Public' has been its watchword.

"To this end, the company will never hesitate to 'speak up' and tell its story in order that the public it serves may know and understand its purposes, its accomplishments and its policies.

"The 'Progress' is put forth as a natural and logical development of the old and tried policies of the company.

"It will be primarily a journal of fact.

"It will record the growth of the state and the territory the company serves, the growth of the hydroelectric industry, the development plans of the company—the problems involved in building the Commonwealth of Destiny.

"It will present the facts involved in financing and operating the great gas and electric industries, and any and all other facts which may prove useful and serviceable to the public.

"In short, the 'Progress' pledges itself to be an authoritative source of accurate information for the public."

This newest step in public relations is of particular interest at the present time on the Pacific Coast in view of the necessity of public good will toward the hydroelectric utilities on account of the impending political situation. Needless to say, the venture will be watched with the keenest of interest by the entire electrical industry.

Appliance Merchandising Campaign of Southern California Edison Company

SPECULATION and rumor regarding the appliance merchandising campaign of the Southern California Edison Company has caused the editors of the Journal of Electricity to secure from the executives of that company a statement outlining the policies upon which the campaign is based and the methods which the company will pursue. This statement appears on page 7 of this issue in the form of an article by A. W. Childs, manager of the commercial department of the company. We recommend that all members of the electrical industry carefully read this statement before forming an opinion. The columns of this journal are open to, and the editors solicit, comments on the program which the Edison company has adopted.

CURRENT COMMENT

Water and Power Act Arraigned By Bond House

Among business men, there are none more cognizant of the dangers of state or municipal ownership of hydroelectric utilities than the financial interests, especially the investment bankers. Their attitude regarding the proposed California Water and Power Act, once defeated yet slated for presentation to the voting public of that state again in November, is enlightening. The following editorial headed "The Return of the 'Water and Power' Players," is taken from "The Review," published by Strassburger & Company, San Francisco bond house:

To "gall," no less than to guile, the father of lies owes his successive triumphs, and unless the proponents of the next California Water and Power "Act" are of a different kidney to their predecessors, they will have to rely on sheer nerve to carry through their project. We know, indeed, that this is to be their program, that they are resting whatever hopes they may cherish on the power of the "tell a lie and stick to it" policy. By such means it is that they think to reach their objective, control of the state purse—into which they picture themselves emptying the contents of the pocketbooks of everyone outside the "inner ring."

There is no danger that they will succeed, if only those who know what private companies have done and are doing, can be induced to realize that the average man does not know, and that a strenuously pursued work of education must be initiated without delay and steadily continued until the snake is scotched.

The claim is that the public can sell light and power at lower rates than those allowed to the private companies ("allowed," for the fixing of rates is not left to the private companies). This never has been done, is on the face of it impossible; it is not possible even for a public authority to sell at equally low prices. Because materials and labor are obtained from the same sources, whether business men or politicians run the plants and executive offices; and the latter may be relied on always to pay more for the working of both. The public official is in no need of qualifications for the job he holds, other than "pull" and the fawning of the spaniel. If he happens to possess ability, it will avail him nothing; assured hindrance in its exercise, and inadequate remuneration, its owner will probably transfer it as soon as he can to a private employer. "Common" labor will be able to force payment of unduly high pay, because votes are precious; the quality of the work given in return will certainly not be too high. The private corporation has always and inevitably an advantage in production costs that will far more than counter-balance the supposed benefits of "sale at cost" so loudly brayed about. A good deal might be said about public "accounting," the greatest joke of all, but the subject is a serious one—for the already over-burdened taxpayer. The battle will never be finally won until the public is educated, and the process is no easy one. It is, however, easier to keep a man from venturing on quicksands than it is to extricate him when he is partly engulfed.

Where the financial interests devote considerable thought and study to all phases of this important subject, it would seem that the newspaper editors devote none at all, but merely reprint the glittering promises and arguments of the uninformed politicians who sponsor such measures. Read what the editor of the Los Angeles Examiner has to say on the same subject:

California must bend its efforts toward owning, operating and distributing its entire hydroelectric power supply.

No forecast meets with more general agreement among scientific men than the statement that the mechanical basis of tomorrow will be hydroelectric power.

Years ago, mankind started a precedent that has cost the people untold billions of dollars, untold burdens of misery. This was the private ownership and exploitation of the world's coal supply.

Mankind knew no better then. We know better today.

It is due to this one historic mistake, more than to any other, that the average person has reaped but a portion of all the huge benefits of modern machinery. Private wealth has taken its toll.

The coal supply, however, is approaching exhaustion. At the present rate, it is stated, the dominion of coal will end within thirty years.

And then—hydroelectric power will take its place.

Already we are well into the transition. Electricity, every day, is taking over more and more of the mechanical duty that has been performed by coal.

Electricity can do more work, and in more ways, than coal ever could.

Now, America's streams, the source of this energy, are harnessed today only to the extent of 900,000 horsepower; their total capacity is 8,000,000 horsepower.

Regard electricity as a gigantic slave, working for humanity.

So regarded, it is seen as the mightiest slave that ever strode the earth.

This gigantic slave can be made, by proper action NOW, to work entirely for mankind. To work, cheaply and well, for women in their homes, men in their factories and railroads.

Or this most powerful slave can become the standing army of a small financial oligarchy; an army keeping the people in subjection to a degree the world has not yet seen.

Most of our electrical development, thus far, is in private hands. And already we have felt the ruthlessness of the control which it effects.

But we are barely at the beginning of the Age of Electricity. We still can act to save ourselves, to benefit ourselves and our children. If Californians look ahead and realize what electricity means, California will take charge.

Water Power Act Agitation Lively in Washington

Preliminary political skirmishes among the politicians over the form of the proposed water and power measure which will be voted on in Washington next November are already occurring. From present indications there will be plenty of legislation on the subject on the ballot which the voter will receive at the polls. The following editorial which is taken from the Seattle Post-Intelligencer, one of the strong municipal ownership organs, discusses some new phases of the subject:

Congratulations to the men and women gathered today from all sections of the state to give consideration to this

commonwealth's most acute present problem—conservation for the people of her matchless hydroelectric power.

You have taken time from busy tasks to lend your counsel and study to this most far-reaching economic question. One or two generations to come may rise up to call you blessed.

Several proposals will come up for your attention and decision.

The first and most important thing, however, is that you take a definite stand against the Reed power bill, referred to the voters by a reactionary legislature.

The task that is second in order of importance is that some adequate counter-proposal be set up as an alternative to the Reed bill. It is for you today to decide what step—and how long a step it shall be—shall first be taken in the way to a fair and ultimate solution of this grave problem.

There was a bill presented to the 1923 legislature that proposed one decidedly forward step. This bill, sponsored by Homer T. Bone, the legislature rejected, by a 57-39 vote, in order to refer in its stead the power-trust-favored Reed bill.

The rights sought in the Bone bill are fundamental in the campaign that is to be waged this next year for public power ownership and conservation.

Legislation proposed in the Bone bill would permit municipally owned electric plants to sell their surplus power outside their corporate limits. It would permit these cities, or others, to construct, own and operate transmission lines and distribution systems. It would pave the way for the publicly-owned hydroelectric plants NOW IN OPERATION to extend their cheaper service to communities which cannot afford the heavy first construction costs. It would bring CHEAP POWER to thousands of rural homes not too far distant to be hooked on.

These rights must not be restricted, bound about with any suggestion of a gross earnings tax. That is the nigger in the Reed woodpile. Here is the line of cleavage between those favoring public ownership and conservation of power and those opposing it.

Establish the right to tax a publicly-owned property and the state constitution itself is violated. Our original law-makers in Section 2 of Article VII set their faces against it. What they directed might not be accomplished directly, we today have no right to attempt indirectly.

Give any legislature the right to tax any publicly-owned enterprise and the door is open to the stifling of that enterprise. Judging by past legislatures it would be speedily and summarily stifled.

An elaborate legal structure for the preservation of the public's interests in the state's "white coal" resources will be necessary. It is not enough, in the final analysis, merely that the rights of Seattle, Tacoma, Centralia, Ellensburg and Aberdeen be protected. It is for you men and women, meeting today in Legion Hall, to decide the point to which legislation is in order now.

It is important that the first test of strength with the power trust be won, if that octopus ultimately is to be rooted out of state politics. Its natural line of operation will be to becloud the issues, to confuse the voters. The most skillful counter would be to clarify and simplify the issues. Whatever is done today, let all present realize that the battle ahead will be most bitterly fought. And the wisest general is he who is shrewdest in his selection of the ground upon which he will fight.

The first objective is to defeat the Reed bill.

As to the proposed constructive legislation, the simpler, the clearer, the more concise and pointed it is—providing it establishes for all time the few fundamental requirements—the more likely is success. First make sure of the fundamentals.

Compare the attitude as set forth in the above editorial with the saner view in the following which is taken from The Manufacturer:

The State of Washington is asked to vote on a project to secure control of electric utilities in that state.

The measure is promoted by advocates of state ownership who have been brought in from North Dakota and Wisconsin for that purpose.

By means of a proposed initiative measure municipalities in the state are asked to bond themselves for from $400,000,000 to $500,000,000 to develop water powers under political control. California turned down a similar program.

Up to the present, millions of private capital have been employed to develop water power for electric utilities under state regulation. Public utilities under private management pay taxes on every dollar invested, while under public ownership the people are asked to mortgage the wealth of the state and tax their own homes for a public service now furnished them at cost plus interest under state regulation.

While any state faces the uncertainty of adopting such a public ownership program, the man with a dollar in his pocket to invest, very wisely delays action in that territory. There is no inducement for him to enter into competition with tax-free and tax-financed undertakings.

What would happen if a law was proposed to prohibit the development of private industry and require cities and states to maintain their own public utility properties? Such a proposal would be instantly rejected.

Socialistic agitators are clever enough to so word their measures that by indirection they establish publicly-owned plants maintained by taxpayers, thus creating a condition that makes it impossible to develop competing private industries.

In this manner is private industry just as surely driven out of the field as if a direct measure prohibited it from doing business.

The whole proceeding is a mockery of free institutions in America under a government established for the protection and encouragement of its citizens rather than a government limiting and restricting their activity and progress.

Superpower Gets Attention From Press

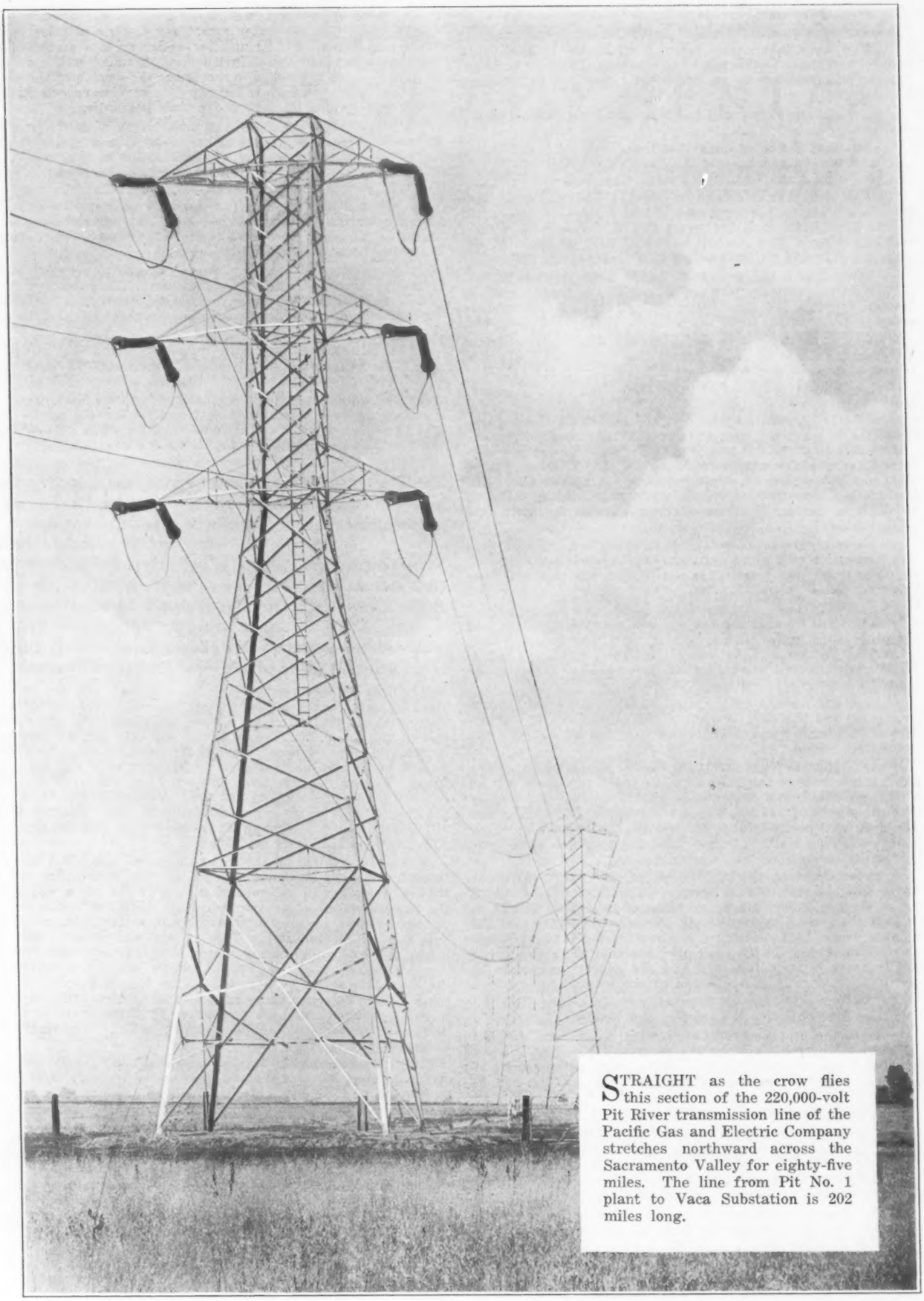
Superpower agitation throughout the country has been reflected in some wild hazards on the part of various newspaper editors who know little or nothing about the subject. It has been called a boon by some and a menace by others. Needless to say, it is a pleasure to read a statement from an editor who knows whereof he speaks. The following editorial is taken from a recent issue of the San Francisco Journal:

There is nothing else left in prospect for the public than to picture each citizen struggling on to the end of his days with a ball and chain around his neck, with the other end of the chain firmly grasped in the claw of the terrible monster of Super-Power. That is the horrid menace that the yellow press has discovered to be hanging over the country today. The only escape from this wretched slavery is for the country to adopt socialism and fling defiance at the teeth of the dragon. Socialism is guaranteed to fix him. Perhaps this counter-irritant will be so much more terrible that the dragon will throw up his claws in despair.

The future will be the super-industrial age when everything will depend on power, and as the time approaches when the coal supply will become exhausted, or the price will rise too high to permit of its economical use, then the "white coal" of the engineer will be the supremely important factor which will control all industry. This is hydro-electricity, and a larger share of the potential supply in this country lies in the western watersheds. The Pacific section has 40 per cent and the mountain states 30 per cent of the visible supply. It is alleged that there is a conspiracy on foot to corral this supply in private hands and then to connect up these units so that they will form virtually one company with a monopoly of all power.

It does not occur to the alarmist that the alleged monopoly will have any inducement to deal generously with its customers, or if it does not there will be any power to force it to do so. The terrible oil monopoly which we have heard so much about for years has indeed grown to be a giant, but curiously enough its history has been one of continually lowering prices and increased service, a result that could not have been attained without the size and economies which the alleged monopolies have attained. Industry could stand a considerable amount of that kind of choking to death.

It is very true that the modern tendency is toward linking the various power companies together so that they may be able to act in cooperation in the furnishing of energy. The object of this is greater economy and efficiency and a more dependable supply and cheaper operation. When not so much capital is required for alternative equipment and stand-by, power should be cheaper.



STRAIGHT as the crow flies this section of the 220,000-volt Pit River transmission line of the Pacific Gas and Electric Company stretches northward across the Sacramento Valley for eighty-five miles. The line from Pit No. 1 plant to Vaca Substation is 202 miles long.

The Southern California Edison Company's Appliance Campaign

By A. W. Childs
Manager, Commercial Department, of the Southern California Edison Company

THE Edison company added to its lines during 1922, 30,000 consumers; during 1923 the increase amounted to 40,000 new customers and the same number of new connections is estimated for 1924. At the same time a survey of homes in Edison territory shows but two electric appliances per home. These and other reasons explained by Mr. Childs in this article account for the appliance merchandising campaign which the company has undertaken.

CONSIDERABLE interest is being shown throughout California in the plan of the Southern California Edison Company to build up its residential load by the sale of household appliances.

In order that the electrical industry at large might understand the details of this plan, three meetings have been held within the last six weeks. For the benefit of those who could not attend these meetings, an outline of the plan is here presented to the readers of the Journal of Electricity.

The Edison company has decided to solicit appliance sales among its consumers with the expectation of securing sufficient additional load to partially offset the reduced income on existing business resulting from lower rates for service which became effective Nov. 15, 1923. Sales will be confined to appliances using around 500 and 600 watts, such as irons, toasters, percolators, etc. All sales will be at list prices and where time payments are desired by the purchaser an additional charge will be made.

The company expects that the lower rates for service will undoubtedly mean an increased use of electricity for all purposes and will particularly lead to a greater application for domestic uses.

In making this adjustment in its sales policy the Edison company is doing what any well-managed concern would do. It is an axiom of business economics that the only way to meet lower prices is through greater distribution. It is also an axiom of business economics that any activity which encourages a greater use of a commodity benefits every concern selling that commodity, whether it is directly responsible for the activity or not. However, in most lines of business increased production and distribution precede the lowering of prices, but in the case of the Edison company the lower price comes first and the company must arrange its affairs to meet this changed situation.

Before deciding to embark on this new policy, the Edison company made a careful survey of the situation and discovered some things which are not generally known by the trade and yet are tremendously significant to everyone in the electrical business. The Edison company in 1922 connected 30,000 new houses; in 1923, 40,000, and a forecast for 1924 indicates another 40,000. A summary of appliance sales shows that these new home owners have not been canvassed in any adequate fashion. Thousands of prospects for electrical appliances have been ignored by the industry. In Edison territory there is an average of less than two appliances to a home, whereas five should be the minimum and twenty-five is the possibility.

People have not been using electric appliances for two or three reasons. In the first place, many of them are not familiar with the electrical devices and what they can do. A large portion of our new population comes from the farms and small towns of the Middle West which as yet have not had adequate electrical service. These people are accustomed to oil lamps; electric lights are a novelty and an appliance such as an electric toaster is something utterly strange. Simply to put a toaster in the show window does little good, for unless its use is explained, it may be taken for a nickel-plated mousetrap.

In many communities the electrical dealers have done excellent work. In other districts they have been so busy with wiring contracts, fixtures, vacuum cleaners, washing machines and similar lines that they have not had the time to cultivate the appliance business systematically.

It must be apparent to anyone who has made even a casual study of the subject that people cannot be expected to purchase and use appliances unless their merits are explained. Advertising does its share, show windows help, but house-to-house canvassing is the way to bring these modern servants directly to the housewife's attention.

The Edison company's decision to take up this work is therefore based on four factors. First, a reduction in rates with a corresponding reduction of gross revenue. Second, the obvious willingness on the part of the consumer to use more electricity because of the reduced rate. Third, the evident neglect of the appliance market as shown by the company's survey. Fourth, the conviction that every branch of the industry will benefit from such a systematic sales campaign as has been outlined.

When the Edison plan was first made public and before electrical dealers had an opportunity to study it, there was a tendency for the dealer to say, "The Edison company has invaded my field."

The question is not whether the dealer or the central station is the logical distributor of electrical appliances. It involves fundamentals far deeper than

that. The Edison company is spending $2,000,000 a month in new power plants and line extensions to meet the demands for service. It is these expenditures that provide an outlet for the contractor's goods and services. Anything that disturbs this systematic electrical development upsets the entire industry. Just now, the company needs off-peak domestic business.

Accordingly, a careful analysis of this whole situation should demonstrate to the manufacturer, the jobber and the contractor-dealer that the company's proposed appliance campaign is the obvious means whereby the electrical trade in Edison territory may be stabilized. The Edison company is going to sell appliances, to be sure, but for every actual sale made there will be twenty people interviewed, who are not ready to buy at the time. These people will buy later from their regular dealer. The salesman's visit, moreover, will lead to an interest in other appliances such as vacuum cleaners, washing machines, ironing machines and so on, which will not be sold by the Edison company. All such inquiries will be referred in an impartial fashion to dealers. Furthermore, the Edison company will display these larger appliances in its offices with the dealer's card attached. The company will also refer to the dealers in its advertising. The Edison salesman, while in the consumer's residence, will take notice of the wiring and recommend the installation of convenience outlets and similar things, all of which will naturally be turned over to the local contractors.

Every industry from time to time is faced by situations which demand a change in its tactics. There were those who were greatly alarmed when the Mazda lamp was introduced, but we all know how the entire industry benefited from its introduction. The present situation has disturbed some of our good friends, but now that the plan has been so thoroughly discussed by the trade at large, there is the same unanimous feeling that nothing but general good to the industry as a whole can result.

Measuring Water with Salt and Electricity

MEASUREMENT of large quantities of flowing water is at last being reduced to the simplicity which the uninitiated would think obvious. To be sure, there have been, for many years, good meters and other measuring devices, but in many situations these are impractical or too costly. Modern hydroelectric power plants use water in enormous quantities. For example, a water wheel was recently tested with a discharge of 3,500 cubic feet per second, or three times the quantity of water used by the City of New York, with its population of six million persons. High efficiency in power development is most important, but the degree of realization can be known only through precise measurement of the quantity of water and its fall through the turbines or water wheels. Some of the methods of measurement have not been satisfactory in degree of accuracy. The most accurate method (almost perfect) is weighing in tanks on good scales. Manifestly, it is quite impracticable in many situations.

Professor C. M. Allen, of Worcester Polytechnic Institute, has recently added a method which is giving results of remarkable precision. Like other methods of modern science for measuring quantities of many kinds, it is indirect. It depends upon the fact that common salt increases the electrical conductivity of water in proportion to the quantity of salt dissolved in the water. The salt velocity method consists in accurately timing between two known points the passage of a charge of brine which has been injected into the water at a point upstream. Dividing the volume of the conduit between the two points by the time of passage gives the rate of flow, or discharge.

For introducing the salt, a strong brine is injected under pressure at an upstream point through a system of small pipes so placed as to give approximately uniform distribution in the cross-section of the conduit. At one or more convenient places downstream, electrodes are inserted in the conduit and used to detect the changing conductivity of the water as the brine passes. The timing of the passing of the brine is done by means of a stop-watch or recording seconds clock and indicating or recording electrical instruments.

The instant of introducing the brine may be registered by a switch operated in conjunction with a quick-opening brine introduction valve, or by a pair of electrodes placed below the brine distributing system. The times of passage by the downstream points or sections of the conduit are obtained by the use of one or more pairs of electrodes inserted in the conduit at each point.

The recording chart can be run at various predetermined speeds to suit the conditions of the test. All events can be registered mechanically or electrically on this chart, including time of introducing brine, passing of brine by one or more electrodes, and the elapsed time in seconds. From this chart, the actual time of the passing of the brine is obtained.

Comparative tests of the salt velocity method with the Venturi meter, the weir, and the weighing tank, show it to be very accurate. It requires no unusual equipment for controlling the flowing water, no huge tanks and scales, no long interruption of the operation of the power plant in which the water is being used.

Experiments were recently made on an 8-ft. pipe line over 3 miles in length with four pairs of electrodes installed in the line. About fifty minutes were required for the charge to pass through this pipe. Time of passage was accurately recorded at each pair of electrodes, the last pair giving as distinct a curve as any of the others.

Although this method of measuring water has been used as yet only at power plants, it is equally applicable to pipes, flumes and conduits for water supply and irrigation, and even to the measurement of stream flow.

How Arizona Feels About Development of the Colorado River

By Hon. George W. P. Hunt
Governor of Arizona

THE decision in the matter of the Colorado River is the most momentous one Arizona will ever be called upon to make. Its whole future as a state is tied up to this proposition. We cannot afford to make a mistake; consequently we are taking the time to secure the fullest possible data on the subject.

The only reason for the compact is the desire of the upper basin states to conserve for their own use sufficient water for their purposes. The authority granted the commission which drew the compact was to allocate the water **between the states.** This was not done. The water was allocated between the upper and lower basins. This is the first objection to the compact, as it leaves Arizona in the lower basin occupying relatively the same position which caused the upper basin states to insist on a compact.

This objection is made all the more important because of the linking together of the propaganda for the adoption of the Colorado River compact and the building of a dam at Boulder Canyon, as is outlined by the United States Reclamation Service and in the Swing-Johnson bill.

It may be asked, Why should there be objection in Arizona to a dam at Boulder Canyon? The answer is that it is starting development of the canyon at the wrong end and that a dam at that point would limit agricultural development in Arizona from the Colorado River to 280,000 acres of land. The power development at that point would largely benefit California, and Arizona would derive little, if any, benefit from it.

It is argued that it will be impracticable to irrigate anything in excess of 280,000 acres of land in Arizona from the Colorado River. Yet the supplemental report of E. C. LaRue, U.S.G.S., as chairman of the Arizona Engineering Commission, is anything but discouraging to those in Arizona who hope to see 2,000,000 or more acres of land irrigated in the state. Not in the immediate future, perhaps, but it is believed that this will be possible long before some of the irrigation projects in the upper basin states are developed for which they are reserving water under the compact. The compact voiding the law of prior appropriation for beneficial use, sets up bargain terms allotting to the upper basin states seven and one-half million acre-feet of water in perpetuity; and to the lower basin, eight and one-half million acre-feet to be distributed on the basis of prior appropriation for beneficial use unless a supplementary compact is made.

California refuses to sit in a conference with the three lower basin states to make such a supplemental compact. As California and Mexico will inevitably develop earlier than Arizona, it is apparent that Arizona cannot accept a bargain allotment in the upper basin and the doctrine of prior appropriation in the lower basin without forfeiting her interests.

I believe that power is the only agency at this time that can bear the cost of development.

One of the main arguments being put forth now is for flood control. The alarm over floods, in my opinion, is exaggerated. During my long residence in Arizona, the only menacing floods have been caused by the simultaneous run-off in the Colorado and Gila Rivers. The Gila River floods, while not fully checked, have had their volume reduced through the several dams which have been constructed so that the flood menace is proportionately relieved.

If power development can proceed unhampered in a businesslike way, the benefits of flood control and more water for reclamation will be realized in a surprisingly short time as a byproduct. Eighty per cent of all the power developed in the lower basin will be developed wholly within the State of Arizona, and the other twenty per cent will be developed between the states of Arizona and Nevada. I believe that this development can be best undertaken by the State of Arizona, and that the state can derive greater benefit and furnish power at less cost than can be furnished through any agency. As the power will be developed in this state, Arizona should determine where it shall be developed in order to be of the maximum benefit to her.

I recently suggested a conference between the states of California, Nevada and Arizona, in order to arrive at an understanding between the states in the lower basin.

The Governor of California refused to appoint delegates to such conference, and the State Engineer of California, who was the California representative at Santa Fe, stated in a letter to the Governor of Nevada, that the upper states were entitled to share in the benefits of any power which might be developed in the lower basin because of any moneys spent by the federal government. I believe it to be the almost unanimous sentiment of the people of the State of Arizona, that—irrespective of the opinion of the State Engineer of California and whatever may be the opinion in the upper basin—the upper basin states will not be entitled to derive any revenue from power developed in the lower basin.

While these objections exist, I do not believe that Arizona will enter into the Colorado River compact.

Advertising for the Central Station

By Theodore Watson
Service Manager,
Johnson-Ayres Company, Advertising Specialists, San Francisco

CENTRAL Station advertising, in its conception, strategy and execution, is like that of any other producer of salable goods. Executives are likely to say, "But my business is different." So it is. But it must be remembered that the consumer still continues to be the same old human being. This is the last of a series of articles on this important subject by Mr. Watson.

THE two previous articles have thus far covered briefly the factor of public and official attitude as they affect central station advertising, and given examples of how some companies have met, through advertising, situations involving unfavorable public and official attitude.

Next on the list of factors affecting utility advertising is "proportions of business to be developed as between industrial and domestic." In other words, how much of the central station's advertising "pressure" should be applied to the industrial market and how much to the domestic market?

Obviously, the answer depends on the possibilities for development in each market and then an accurate appraisement of what it will cost to achieve the development. The power company must employ its promotional funds in directions from which the most can be returned. Otherwise the cry of "extravagance" and "willful waste" is apt to be raised. After a market has been gaged and cost of development appraised, the question "Is it worth it?" must be answered.

None of these questions should be answered by guess nor possibilities gaged entirely from surface conditions. Careful surveys and investigations have revealed and continue to reveal surprising facts. Getting the actual facts is very important to utility executives. A simple study of its own records, revealed to one complacent company the surprising fact that considerably more than one-third of its domestic meters were registering less than minimum, minimum, or only slightly over minimum current consumption. Here was a condition demanding attention. As this company served a community made up of farms and small cities, the domestic market offered the greatest field for development. A recent favorable consumer rate made it possible to push the portable electric heater principle, and to institute direct by mail advertising on electric ranges and water heaters to its farmer customers. It was also found that too few appliances were in use by these customers. The advertising was shaped accordingly.

Investigations by questionnaires to consumers, through a third party, are very prolific of results. These should be so planned as not to appear to be sent out by the power company. From the answers and between the lines can be discovered many an unsuspected situation or condition, or a preconceived condition affirmed or proved false. This is provided the questionnaire is skillfully planned. House-to-house and factory-to-factory investigations prove valuable for getting a line on the possibilities in the domestic and industrial markets, and for spotting sales barriers.

Investigations brought out the now generally-recognized condition that home kitchens are very inadequately illuminated and that by selling the housewife on the comforts and advantages of good kitchen lighting, the central station can profitably increase its domestic load.

Frequently such surveys reveal wholly unsuspected causes for low consumption of current or opportunities for increasing the consumption per meter, or some cause for dissatisfaction on the part of the consumer. Properly-conducted surveys are well worth the trouble and expense.

The subject of investigations and surveys is so big that its possibilities can be suggested only. The important point to remember is that to properly apportion the advertising budget between the domestic and industrial fields, the facts and peculiarities and unsuspected things in both fields have got to be smoked out and studied.

Quite often, the methods of advertising to these two fields are radically different. In the domestic field there is one audience, large and conglomerate. The appeal is to the mass. Hence, the newspapers, street cars and billboards are the logical major media for the advertising message.

In the industrial field there are many audiences, each comparatively small and each having a particular interest. Here the appeal should be separate and very specific. Therefore, as a rule, direct mail, trade papers and personal calls, offer the logical major media for the advertising message. It is true that under certain conditions, the use of direct-mail advertising and personal calls for the domestic consumer, and the newspapers for industrial advertising, is advisable. With these various media in view and knowing the rates and costs for employing them, the central station manager can more readily determine the proper division of his advertising funds between the domestic and industrial fields.

One effective plan for advertising to the industrial field is to divide the various prospects into groups based on common problems in connection with the use of electricity. Campaigns of direct-mail advertising are then carefully planned. As an opening gun, a general folder, booklet, or mailing piece may be sent out, treating in a general way the subject of electricity as applied to the particular group's pro-

ducing or manufacturing problems. Pictures of installations, diagrams and charts are useful items in all mailing pieces, with testimony as to results. Following this first piece, at regular intervals, mailing pieces are sent, each one devoted to describing not more than two actual installations, local if possible. These mailing pieces sometimes take the form of bulletins, and are issued in regular series, numbered and prepared for permanent filing or binding.

It should be remembered that although advertising to industrial prospects is primarily of a technical nature, the recipients are human, and advertising literature can be enhanced in value by injecting in picture and text the elements of "human interest"—also an interesting arrangement of pictures and reading matter. An initial survey will have revealed the particular sales barriers for each industrial group, and each mailing piece will, of course, be planned and worded accordingly. This is a matter of salesmanship in print. Space does not permit of very lengthy discussion of the subject of direct-mail advertising. Many effective plans can be developed by the resourceful central station executive and his advertising and sales counsel. Some companies have taken advantage of local industrial news items and happenings, in building their advertising, both direct-mail and newspaper.

Mention was made of occasions when newspaper advertising seemed advisable in reaching the industries. Some phases of industry embrace a very large number of people directly or indirectly interested; for instance, electric signs, or store, shop and window lighting. Proprietors of shops and stores, big and little, are anxious to hear about better lighting, and proper display of their firm names on their buildings. In addition, every shop girl, salesman, factory worker, employee of wholesale house, etc., is very much interested in better light in connection with his or her work. And their influence is important. Probably the newspapers reach these combined audiences better and more economically than any other medium.

Pacific Gas and Electric Company has advertised electric signs and store and factory lighting in newspapers with satisfactory results. The company sells no equipment, but those who do have reported unmistakable results from the company's newspaper advertising. Other utilities have had similar experiences.

Sometimes the situation calls for a general building of good will on the part of the company's industrial customers and prospects. This can be accomplished, perhaps, most readily by proper use of newspaper space. At the same time, injection of the sales angle can be accomplished.

An example of this was the campaign run about three years ago by the United Electric Light Company of Springfield, Mass. Each advertisement was headed "Springfield Industries Served by Electrical Power." One local industry was featured in each advertisement, a brief history was given followed by present day developments. The advertisements ended by stating the experience of these concerns in using electrical power, economies achieved over other forms of power, etc.

All this leads naturally into another factor affecting central station advertising — "Sales and new business departments in connection with advertising."

Well organized sales and new business departments are almost indispensable to the progressive electric utility. Even in fast-growing communities where natural expansion keeps the company busy, there is always a construc-

Newspaper Advertising	Direct Mail Advertising	Commercial Department Activities
JANUARY **Kitchen Lighting** Also, ask your dealer to show and explain the many convenient and labor-saving devices. Electric Appliances.		Work on dealers to put in displays of kitchen lighting devices, also to run special advertisements. Dress Station's windows—show **proofs of advertisements.** Get newspapers to solicit dealers for tie-up advertisements.
FEBRUARY Same as January.		Call on consumers, placing all orders through dealers. Keep after dealers.
MARCH **Appliances**	To farmers on electric ranges and water heaters.	Work on dealers to display and advertise appliances. Use proofs of Station's advertisements, and show mail plan to farmers. Urge newspapers to solicit dealers for tie-up advertisements.
APRIL **Appliances** or idea of "Electric power to do your work."	To farmers on pumping and motors for chores.	Same as for March, with additional work on motor and farm devices. Explain mail campaign directed at farmer.
MAY 1 large advertisement on what work electricity will do, including odd uses such as egg hatching and chick brooding. 1 large advertisement on proper wiring of homes.	To farmers on electric ranges and water heaters.	Explain to dealers the mail campaign on ranges. Get their cooperation. Work with architects, builders, etc., on proper wiring. Get newspapers to solicit dealers to tie-up with advertising.
JUNE **Window and Store Lighting**		Work on merchants, shop owners, etc., referring all sales to dealers. Explain to dealers and get their cooperation, with special advertisements and displays of fixtures, etc.
JULY Small advertisements, brief text on "Let electricity do your chores," mostly display, reminder and carry-over stuff.		Keep in touch with dealers. Show proofs of advertisements.
AUGUST Same as July		Same as July.
SEPTEMBER **Electric Labor-Saving Appliances**	To farmers on motors, washing machines, sweepers, etc.	Work with dealers to get cooperation on special displays and advertising. Show proofs of advertisements and explain mail campaign. Get newspapers to solicit merchants for tie-up advertisements.
OCTOBER **Better Home-Lighting** Also, bring in Kitchen Lighting.		Work with dealers to display lamps, shades, fixtures, etc. Show proofs of advertisements. Get newspapers to solicit dealers for tie-up advertisements and to run articles on home lighting.
NOVEMBER **Electric Portable Type Room Heaters** restricted to emergency and short period heating, such as bathroom, etc. Mention electric appliances.		Get dealers to display these devices and advertise them. Show proofs of advertisements. Get newspapers to solicit dealers for special tie-up advertisements.
DECEMBER **Electric Appliances** as gifts.		Urge dealers to make special displays and run special advertisements. Get newspapers to solicit merchants for special advertising.

Suggested schedule for central station advertising.

tive and educative work to be done. Just because a resident or a factory signs up for service is no indication that either will use this service to the best advantage or use sufficient electricity. The progressive company will keep in constant touch with its customers, to study and advise and help all toward keeping their service efficient and satisfactory. The same company will also advise with new home and factory owners toward securing for them adequate and proper electrical service. All this requires a capably organized force of engineer-salesmen.

This force will also work in conjunction with the advertising, each reinforcing the other. In this way, both advertising and selling efforts are made more productive of results.

How large this sales and new business department should be depends upon local requirements and the opportunities for satisfactory development—conditions which, as stated above, must be determined accurately before plans are laid out.

The usual form of organization combines sales and new business. There generally is a sales manager who has under him sales engineers. In the larger communities these men are divided into groups, each specializing on some one industry or phase of electric service, such as illumination, electric trucks, electric ranges and water heaters, the enameling industry, etc. In the smaller communities, the manager himself usually takes charge of sales and has one or two men to assist him, none of them trying to specialize, as the field is limited. Carefully planned, systematic schedules of calls are necessarily a big feature in effectual operation of the department. Even in small communities when and where and how and why are exceedingly important.

One of the most important functions of the sales or new business department is securing the cooperation of dealers in electric appliances, and electrical contractors—another factor affecting central station advertising.

Dealers are the outlet through which electricity-consuming devices reach the company's customers. It is obviously much to the advantage of the company to develop these dealers into efficient merchandisers of appliances—the more appliances sold (intelligently sold) the more electricity will be used. It is

Samples of central station advertising directed toward industrial and commercial consumers.

Only $15.00 Down
An Unusual Range Offer You Cannot Afford to Overlook
Till June 15 Only
Reduced Price and Easy Terms
The Range That Watches the Clock
Glad to Show You Any Time
Ask for FREE Demonstrati
The Range With a Clock Makes Home Life Happy
Electric Store
Alder Near Broadway
Portland Railway, Light & Power Co.
Only $15.00 Down
Better Cooking
CALIFORNIA OREGON POWER COMPANY
The Servant Problem and the Solution—
Equip Your Home With an Electric Washing Machine
Portland Ry., Light & Power Co.
Start
Finish
Electric Service Is a Blessing on Washday
Electric Washing Machines
ELECTRIC STORE
Portland Railway, Light & Power Co.

Residential consumers are reached by advertisements of this character.

astonishing how many more appliances can be sold by the live merchant who understands how, than by his neighbor who is indifferent and simply takes what comes his way. All dealers should be made to feel that the company's sales advertising is being done to **help them.** They should be taught how to cash in on the sales advertising by co-ordinating their store and window displays and using advertising space of their own tie-in with that of the utility. They should be taught how to put on demonstrations and how to sell the particular appliances they carry. They should be sent advance proofs of all newspaper advertising and helpful suggestions through the mail from time to time.

This type of dealer work requires men who are salesmen and merchandisers as well as central station men. They should understand the dealer's viewpoint and be able to talk to him in his own language. Should the utility also retail appliances, this cultivation of dealers is needed more than ever. Most dealers are inclined to resent the competition and those central stations who do not retail and have definite policies in this regard seem to secure the largest measure of dealer cooperation. There are, however, two sides to the question of retail selling of appliances.

In dealer cultivation, the wholesaler should not be overlooked. He welcomes the help of the central station in making better merchants of his customers and can be of material aid.

The policy and plan of the Commonwealth Edison Company of Chicago pertaining to dealers is interesting. Quoting from a recent letter from this company:

"In the merchandising of electrical appliances, we extend to them (the dealers) the same privileges and advertising accorded our own Electric Shops, especially in the sales of the larger appliances such as the electric washer and cleaner. These appliances the dealer sells on the same deferred payment plan, the payments for same being spread on our monthly light bill, the dealer receiving his profit on the sales of these appliances after credit has been established, our company assuming the contract and the monthly collections. This does not require the dealer carrying a large stock thereby tying up his capital.

"The dealer also, if he wishes, may obtain for his store a bill paying station. He may also give and redeem a profit-sharing coupon under the same plans in effect in our own

Electric Shops. This coupon is exploited by our company to assist the retail merchants particularly in the outlying districts to advertise their business and to also stimulate the attendance at the different Electric Shops.

"In addition to this, we assign for their exclusive use a sales promotion salesman who visits their shops regularly to induce their interest in electrical merchandise particularly in their local field, and in this connection they are furnished card writing service and window trimming service free.

"In the manner briefly outlined, our company is endeavoring to assist the local contractor-dealers to build up their several businesses and the community in which they operate."

Now, in the case of contractors, it is a problem, at least on the Pacific Coast, to secure their full cooperation toward adequate wiring, proper store and shop lighting, and merchandising of heavy appliances such as ranges.

A recent investigation showed that practically all merchants, large and small, were alive to the importance of proper store lighting, but were at a loss to know to whom to turn for advice. At the same time, the manufacturers of lighting fixtures, materials, lamps, etc., were supplying the contractors and dealers both, with the most complete literature on lighting for all sorts and types of stores and shops. This literature is prepared by recognized engineer-specialists and contains exceedingly valuable data.

Apparently, these data—the very information the merchant and shop owner is eager to get—stop and pile up in the office of the contractor or dealer. As a result the central station is obliged to step in, break the jam, and create a connection between the contractor-dealer and the prospective customer by endeavoring to show the former how to merchandise his wares and knowledge, and the latter how and where to secure the lighting counsel he seeks.

The question of adequate wiring seriously affects the sales of electric ranges and other heavy appliances. Electrical contractors and even architects must be educated to cooperate in having new homes wired for all future electrical requirements, even to the extent of complete space-heating by electric energy.

Another feature of the plan of the Commonwealth Edison Company in their work with contractors and dealers, is described as follows:

"Once a month we hold a joint dinner meeting at which the company representatives engaged in the merchandising branch of our business meet with the contractor-dealers and matters of mutual interest are discussed, all the expenses of same being borne by this company."

One of the medium-sized power companies of the West serving four small cities and intervening farm territory has worked out a well-co-ordinated plan of advertising and dealer sales work. It was first decided for each month in the year, what definite appeal the newspaper advertising should take, considering conditions and reasons. After this schedule of what to advertise and when, was laid out, its "bare spots" were covered by specially planned direct-mail advertising. For instance, the newspaper schedule called for the advertising of the lighter appliances during certain months. This did not provide for featuring electric ranges and water heaters because the company also sells gas in the towns, and did not want to jeopardize its gas investment by pushing electric cooking and heating. But the farmer-customer was not interested in gas and made a logical and excellent prospect for electric ranges and water heaters. Therefore, a special **mail** campaign was planned to reach him during certain months when appliances were the subject of newspaper advertisements.

Other direct campaigns were planned and the two schedules—newspaper and direct-mail—joined in one co-ordinated schedule. Then the activities of the sales department were planned so that the interest of the dealers would coincide with the subjects being advertised, the results aimed at being proper displays, local advertising, and sales efforts on the part of the dealers, all paralleling the advertising effort of the company. The accompanying table visualized this excellent plan.

Outdoor advertising would have been also very effective for this campaign, copy being planned to parallel that of the newspaper copy. The appropriation, however, was not large enough to allow both, and it was decided that the newspaper advertising was of more value. It should be mentioned that a part of the activities of the sales department was inducing the newspapers to devote a department—perhaps on the household page—dealing with electric appliances and their use, proper lighting, etc. The central station should, in these cases, be prepared to furnish the newspapers with suitable material.

Some central stations have successfully used an advertising appeal which combines the institutional or purely good will with the sales-making. This blending likens itself more to the institutional, however, and should not be confused with the out-and-out sales advertisement having the institutional flavor.

A good example of this type of advertising is the series used by The United Electric Light and Power Company of New York City. Each of these advertisements features a prominent building to which the company serves electricity. An attractive pen and ink picture of the building is shown while the text of the advertisement gives a brief description of the structure, its location and the names of architect, builder and electrical contractor. The advertisement ends with a paragraph stating that the company is ready to serve efficiently all requiring electricity.

This subject of advertising for central stations is so big and so much can be and should be said, and space so limited, that generalities and outlines have necessarily made up the bulk of these articles. It is hoped that some thought, some constructive idea, may reward the reader for his effort in following the series. As a parting thought—central station advertising, in its conception, strategy and execution, is like that of any other producer of salable products. You often hear the plea, "But my business is different." Of course it is. But, to quote a prominent national advertising man, "Remember, the consumer still continues to be the same old human being."

Installation of Identified Conductors

By Claude W. Mitchell
Electrical Engineer, Board of Fire Underwriters of the Pacific, San Francisco, Calif.

IN the October 15 issue of the Journal of Electricity an article on the protection of branch circuits called attention to the necessity of identifying neutral conductors. Since the publication of that article a large number of copies of the new National Electrical Code have been distributed and so many of the recipients have asked for interpretations of the requirements that it has been deemed advisable to present a few diagrams showing proper methods of using the identified conductor.

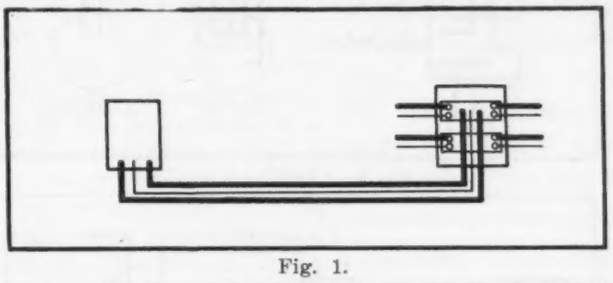


Fig. 1.

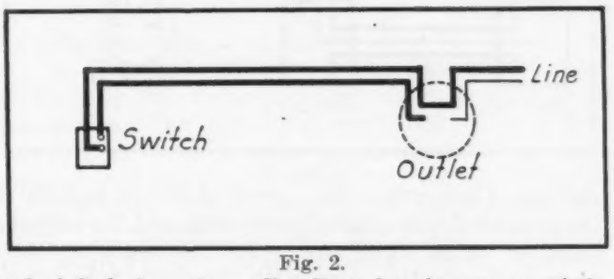


Fig. 2.

The rule relating to the subject is found in Section 601-b of the new Code and reads as follows:

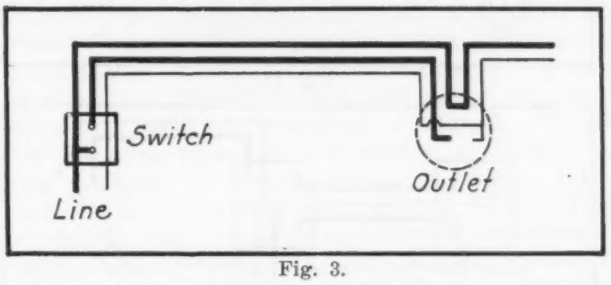


Fig. 3.

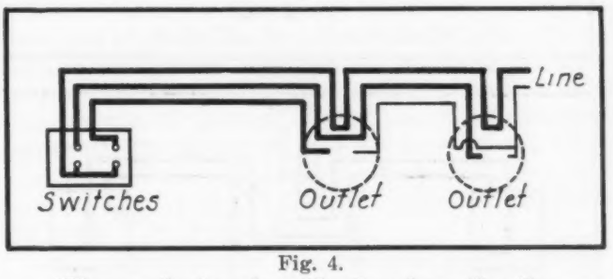


Fig. 4.

"For conductor sizes No. 8 and smaller the neutral conductor on all 3-wire circuits and one conductor on all 2-wire circuits shall have a continuous identifying marker readily distinguishing it from the other conductors. For rubber-covered wire the identification shall consist of a white or natural gray covering. When one of the circuit wires is to be grounded, the ground connection shall be made to this identified wire."

As pointed out previously, compliance with this rule will prohibit using this white or identified wire for all conductors of a circuit. In approved armored cable or twin wires one of the conductors will have the white or natural gray covering for identification.

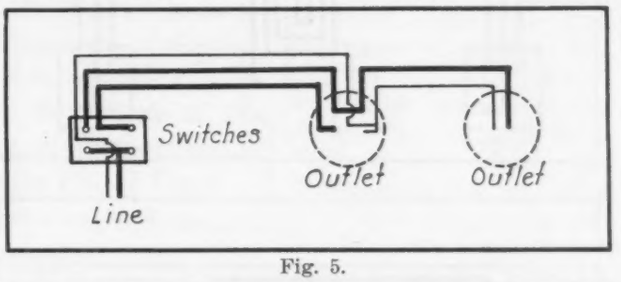


Fig. 5.

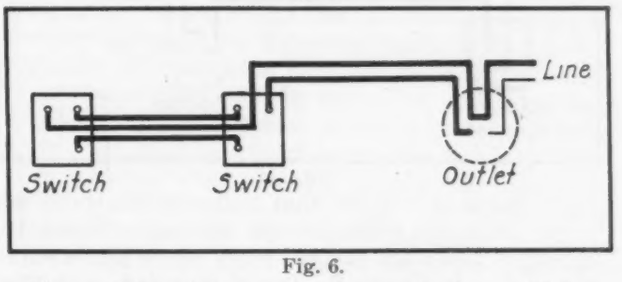


Fig. 6.

For Switches

In the rule for switches (Section 1204-a), it is provided that single pole switches shall not be placed in any neutral or grounded wire. In other words, single pole switches shall not be placed in the identified wire. Also, three-way switches shall be classed as single pole switches, and shall be so wired that only one pole of the circuit will be carried to either switch. The proper methods of connecting single pole switches are shown in Figures 2, 3, 4 and 5 when single conductors are used and in Figures 10,

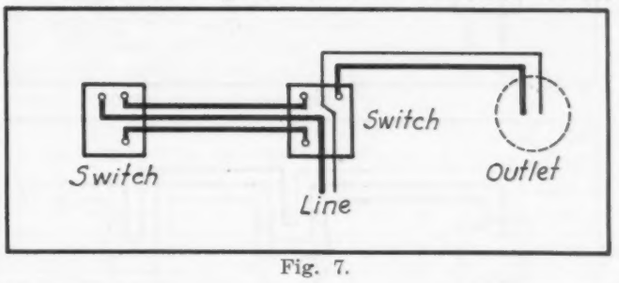


Fig. 7.

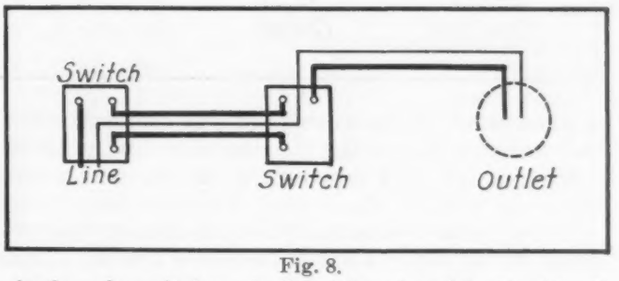


Fig. 8.

Note—Heavy lines in figures denote the black covered or live wires. Light lines denote identified or grounded wires.

11, 12 and 13 when armored cable or twin wires are used. Correct methods of connecting 3-way switches when using single conductors are shown in Figures 6, 7, 8 and 9 and when using armored cable or twin wires, in Figures 14, 15, 16 and 17.

Due to the fact that armored cables and twin wires contain one identified wire it will be noted

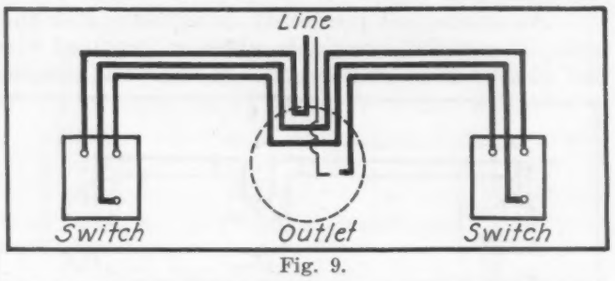


Fig. 9.

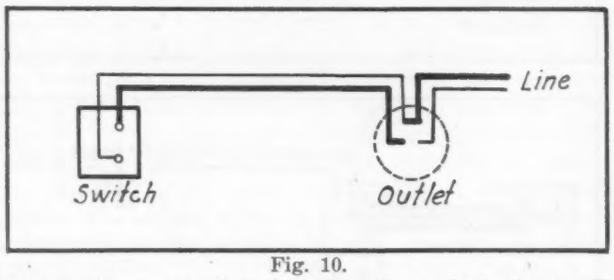


Fig. 10.

where either is installed that at the switch there will be one black and white covered wire as in Figure 10, instead of two black covered wires where single wires are used as in Figure 2. It will be noted, also, that

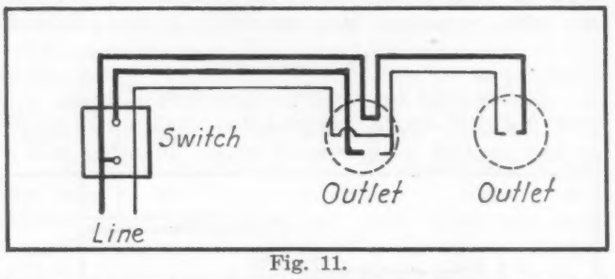


Fig. 11.

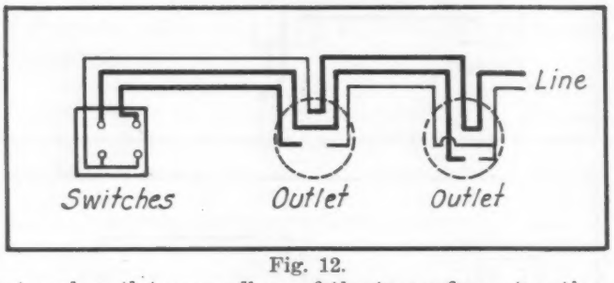


Fig. 12.

at each outlet, regardless of the type of construction, one, and only one, of the terminal wires is the identified conductor, and that this is **not** the one coming from the switch. Care must be taken in armored cable or twin wire installations to insure this condition at the outlet as it is necessary for the proper connection of fixture leads.

For Fixtures

Section 1402-b requires that, "each fixture shall be so wired that all screw shells of sockets will be connected to the same fixture stem wire, or supply wire, or terminal in the fixture, and this wire or terminal shall be marked in an approved manner by which it may be readily distinguished. The marked wire shall be in all cases the grounded wire." The last sentence means that this marked terminal shall be connected to the identified circuit wire at the fixture outlet.

Adherence to these rules of the Code will minimize the possibility of harmful or dangerous

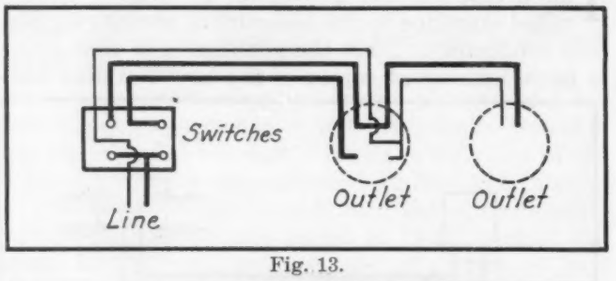


Fig. 13.

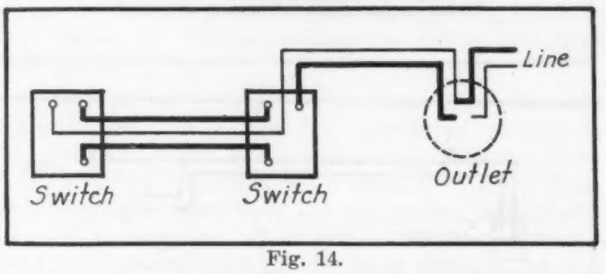


Fig. 14.

shocks. Connecting the screw shells of sockets to the grounded wire places these shells and the exposed bases of lamps which are being inserted practically at ground potential. Also, with the single pole switch

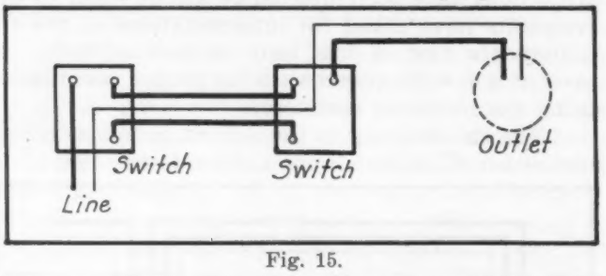


Fig. 15.

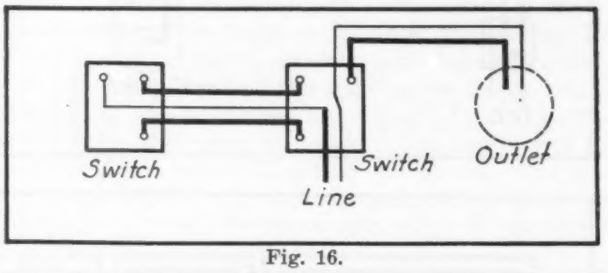


Fig. 16.

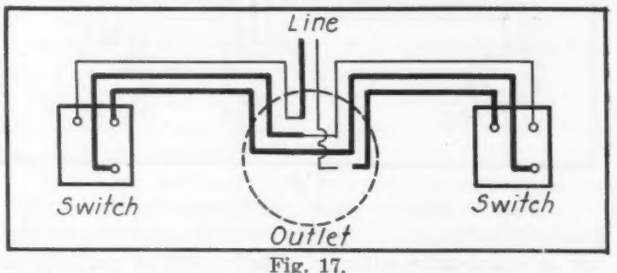


Fig. 17.

in the live wire of the circuit no part of the fixture wiring is above ground potential when the switch is open. Therefore the possibility of shocks is almost entirely eliminated.

Note—Heavy lines in figures denote the black covered or live wires. Light lines denote identified or grounded wires.

Problems of the Manufacturers' Agent

By E. A. Kincaid
Associate Professor of Commerce, McIntyre School of Commerce, University of Virginia

WHAT justifies the existence of the manufacturers' agent in the electrical field? Is his position vital in the distribution of electrical products? Will he continue to be a necessary factor in the scheme of distribution? These are some of the questions which Mr. Kincaid answers in this article of the series which he is writing on the distribution of electrical products on the Pacific Coast.

SEVERAL references have been made to the tendency of the manufacturer to eliminate the manufacturers' agent from his system of distribution. While this is one of the serious problems with which the manufacturers' agent has to contend, it is only one of those which it is now proposed to consider. The manufacturer may be disposed to open a factory branch. Let us consider this one first. There are several factors which may induce a manufacturer to take this step.

I. He may want more precise and exact control of the processes by which his goods move to ultimate consumers. The more steps controlled by the manufacturer, in the process by which goods move in the channel that leads to the consumer, the more definite is his control. The advantages of such control are many, and the chief obstacle in the way of realizing this desired end is the cost of obtaining it. The cost of more exact control on the part of the manufacturer is the chief reason for the disposition to use manufacturers' agents. The leading instigator of such a step, that toward elimination of the agent and substitution of the factory branch, is the general sales manager of the manufacturer. He is the one who most accurately senses the lost motion, the waste and inefficiency that comes from a distributive system dominated by independent middlemen. There is a good deal of common interest on the part of distributors and manufacturers, but there are also forces that make for divergence of interest. Whenever the latter appear to predominate, the manufacturer is ready for consideration of a change in the processes by which his goods reach the market. The only certain way that middlemen have to assure their perpetuation is through the elimination of the factors that make for divergence of interest. The less there are of these the less the manufacturer will be inclined to consider innovations in his marketing methods. To deter the sales manager from taking steps to open a factory branch the manufacturers' agent must reduce to figures which do not lie the relative costs of the two methods. A manufacturer is open to reason in terms of costs in dollars and cents.

II. A manufacturers' agent may be a poor sales manager and thus fail to get distribution for the products of those whom he represents. This is a not infrequent explanation of the disposition of the manufacturer either to eliminate manufacturers' agents from his market methods or to transfer his business to another agent. Competitive conditions in Pacific Coast territory are such that only a wide-awake agent can hope to survive. He must function 100 per cent. To survive he must comprehend a multitude of intricate situations. He must know where the business is and go after it. A sales manager is essentially an organizer, a planner and a strategist. He must be able to select real salesmen and devise a system of following up their activities. He must be able to see his market as a whole and then to analyze each separate district in terms of its peculiar problems. He must keep informed as to the activities of his competitors and the posibilities of his market. A sales manager is a general and a statesman combined. He must be a thinker who can think in terms of a problem which he can visualize as effectively as if it were close at hand instead of in some remote part of his territory. The writer met some manufacturers' agents in Pacific Coast territory who have all of these qualities. They are going ahead steadily and giving the manufacturers' agent a real and honorable status in the electrical field. Where such men are at the helm manufacturers are not contemplating changes.

III. The manufacturer may feel strong enough to get the support and cooperation of jobbers without the assistance of a manufacturers' agent. When this situation exists there are certain inherent factors that make it possible. In the first place, the manufacturer may have a highly standardized and widely advertised product or line. In the next place, he may have the resources to finance a long adverse pull that may follow upon any change in methods of distribution. He may have in his line some, one or more, products which are much needed to fill out the jobber's stock. He may have a line or product for which there is no serious competitor, or in other words, a product that he alone can supply. His manufacturers' agency may have failed utterly to sell his own organization when he sold his manufacturers' line. Thus it may come about that the manufacturer can hold the jobbers by means of his line, where under other conditions to cut off the manufacturers' agent would mean the loss of the jobbers' good will. Under such conditions the manufacturer may feel strong enough to eliminate the manufacturers' agent and go direct to the jobber from his own factory branch.

Another problem confronting the manufacturers' agent has to do with the possibility that his principal may reduce commissions. Just what the commission shall be is ordinarily set forth in the

original agreement and it varies, in practice, with the lines handled and the nature of the service that the agent is to render. In some cases the commission has been placed at 20 per cent of sales and has then been reduced as the volume of sales has expanded. Some manufacturers' agents admit that such a practice is entirely proper since the services rendered are no longer so arduous, while the aggregate compensation will be even more, the volume of sales expanding more rapidly than the rate of commission declines.

It must be clear that agents cannot insist upon a commission rate which will tend to encourage the manufacturer to shift to a factory branch or sell direct to the jobber. Hence the rate of commission becomes a matter of policy.

The manufacturers' agent also has the problem of getting and holding a good and well balanced group of products. Upon the proper solution of this problem will depend his own cost of operations and his volume of sales. It is important to the agent that he shall represent a strong house with sound policies. He prefers a manufacturer with a line that is standard in every respect and it will, of course, mean much to the agent if the manufacturer conducts nation-wide advertising of his products. The agent realizes that he must start with a product that will hold its place in the market in the face of competition resulting from the coming of improved goods. Hence if he selects only high grade products, he need not fear that his labors in developing a market will have been wasted. In other words, the product will have been worth all the effort expended on it. Ordinarily these two problems go together—getting the proper lines to handle and the best houses or manufacturers. A good house ordinarily means a high grade product, though it often happens that an obscure house puts out high grade goods.

Need for Educational Work

There is need for a vast amount of educational work in behalf of some lines, partly to counteract prejudice of jobbers or other buyers, and often to overcome the tendency to adhere to lines that are "sold" to the public through advertising and equally well "sold" to the trade. There is less sales resistance for such lines, and jobbers stick to them on that account even though some less well-known product may be superior. At any rate, it is the business of the manufacturers' agent to cultivate the market and bring home to jobbers and dealers, to engineers and architects, and to purchasing agents of corporations the merits of his lines and the advantages that will accrue if they are specified. Thus by a process of attrition a manufacturers' agent may gradually eat in on the demand for some well-known product and find a place in the sun for the output of the manufacturer whom he represents. The thing has been done times without number and it will be again. Certain manufacturers' agents will say that the market is dominated by certain big producers or certain big jobbers, but even while they talk, other agents are at work skirmishing for business and getting it. While getting it, they learn how to get more. There is always a place for the small manufacturer with a good product, and there always will be. It is not always the large manufacturer or the large jobber that has the lowest cost per unit of business done, and so long as this is true there will be effective competition for the big concerns.

It is said that eastern manufacturers sometimes make unreasonable demands of their agents in Pacific Coast territory. These demands arise from the fact that the manufacturer is without information as to trade practices, customs and conditions in the territory. It therefore falls to the lot of the manufacturers' agent to carry on educational work in two directions. In the first place, he must educate the manufacturer whom he represents. In the second place, he must carry on educational work which will enlighten the jobber or dealer or other buyers of his lines. But the former is of a somewhat different sort in that it involves the process of enlightening the manufacturer as to the characteristics of the market in which his agent is operating and what may reasonably be expected of that market as to volume of sales, terms of sales and related matters, transportation problems, credit risks, and business conditions. The position of competitors and their methods are also matters concerning which the manufacturer stands in need of enlightenment.

Varieties of Manufacturers' Representatives

This discussion must not be concluded without a word about the several varieties of intermediaries that stand between the manufacturer and the jobber or other distributor.

I. For the most part, this discussion has had to do with what may be described as the typical manufacturers' agent. Such an agent represents lines produced by several manufacturers and he sells the lines as he may, on a commission basis. Generally speaking, these lines are closely related to each other so that, taken as a whole, they give the salesmen of the manufacturers' agent a fairly good opportunity to supply some need, to take some sort of an order, upon the occasion of each call made. Such an agent may have but one office from which he handles the business of a territory within a considerable radius.

II. Other manufacturers' agents have all of the characteristics of this first and most typical sort; in addition, they have branches. Thus one meets with manufacturers' agents who have head offices at San Francisco with branch offices at Los Angeles, Portland and Seattle and perhaps at other points. Such an agent will be able to cover a much larger territory, and such an organization of his territory is needed, if his contract covers the Pacific Coast territory as the term is used in this series of articles. Where such an organization of the territory prevails, salesmen work out from the branch offices and thus are able to cover each region within the territory with greater intensiveness.

III. Either of the first two types may carry consigned stocks in a warehouse, and thus we have a third type created by adding this function to the service rendered by either of the other two. Where this practice prevails the title to all goods remains in the manufacturer, but the agent disposes of them

on commission under such conditions as he may find most satisfactory. It is obvious that the warehousing function thus undertaken may make it possible for the manufacturers' agent to obtain business and establish relations that would otherwise be impossible.

IV. While speaking of the warehousing feature of the manufacturers' agent's activities, it may as well be explained that some of these intermediaries maintain stocks sufficient to supply jobbers as they may need goods. Thus we have a fourth variety of the general species, and this variety is not so different from still another, the manufacturers' agent who carries a comparatively small stock. The intent of such a service is to provide nothing more than an emergency stock, and this is often highly expedient because of the remoteness of many jobbers from the factory. Often the jobber suffers a loss of business because he cannot fill orders until goods arrive from the factory. Here the manufacturers' agent may step in with his emergency stock and thus aid the jobber, the dealer and the consumer.

V. In addition to these types or varieties of manufacturers' agents, there is the direct factory representative who gives all of his time to one manufacturer and to that one alone. He may be regarded as a salesman serving under the general sales manager at the factory but serving at some outpost of the market until a more comprehensive method becomes advisable. Generally he works on a salary basis, but he may receive both a commission and a salary just to insure greater vigilance in getting new business and holding up the volume of the old. Such a representative differs but little from the technical engineer who handles, for the factory, certain highly specialized engineering products which call for specialized knowledge and just as specialized selling ability.

VI. Reference may also be made to yet another and but slightly different functionary, the sales agent who really acts in the capacity of the manufacturers' own sales department in the particular locality where he serves. He is one of the numerous eyes of the factory sales department and at the same time an outlet for goods via such channels as may be available. He differs from the factory representative in that his contract may not call for exclusive representation.

Thus it appears that economic conditions have created several shades of the general type known, for the purposes of this discussion, as the manufacturers' agent.

Conclusion

In summation of what has been said concerning the very interesting and important intermediary between the manufacturer and the jobber or other distributor of electrical goods—the manufacturers' agent—let it be said that

I. He is in the field because he performs important economic services.

II. Not only that, but he performs them more cheaply than those manufacturers who use him are in a position to do.

III. He is something more than one of the factors through whose hands goods may move, for he is a sales promoter, a business scout, a sort of light cavalryman, who is able to get business here, there and everywhere in the face of all sorts of conditions.

IV. He is an educator of manufacturers and jobbers, dealers and consumers. He knows more about general market conditions than any other factor in the distribution of electrical goods. He can tell more about the way business is being done and why it is being done than any other element in the trade.

V. He is probably best informed concerning the strength and weakness of a given manufacturer's line, concerning the strength and weakness of the manufacturer's methods, the jobbers' marketing and merchandising abilities and the facts concerning the contractor-dealer problem.

VI. He is in the game and he is there to stay for many years to come, so far as the Pacific Coast territory is concerned. This is true for several reasons. Most of them are inherent in the fact that the Pacific Coast is remote, not so much in miles as in knowledge in the possession of manufacturers. Out of this situation arises other explanations for the existence of the manufacturers' agent in the electrical field. Thus it comes about that he must supply the trade information that is so essential to the process of breaking down the sense of remoteness that characterizes so many eastern manufacturers who do, or hope to do, business on the Pacific Coast. The fact that centers of consumption are so scattered and distances are really relatively great, in terms of trade conditions, will make it necessary for some manufacturers to make use of these agents for many years. The hope of a volume of sales and a certainty of a place in the market cannot, for many manufacturers, become sufficiently tangible to make it possible to displace this intermediary.

Most important of all the factors here involved is this one—the manufacturers' agent is the best and surest dependence of the newly organized factory, of the new and struggling manufacturer whose plant is relatively small and whose output is of corresponding size and range. There is no reason to suspect that the day is at all near at hand when new manufacturing enterprises will cease to come into being. Such a day is certainly no nearer than the day when new inventions of electrical specialties of all sorts will cease. Those most familiar with electrical science hesitate most to make predictions as to the future of the industry. The limits within the field are absolutely unpredictable. This being the case, new devices of all sorts will continue to appear and corporations will be formed to manufacture and distribute them. Such corporations must sell to survive, and to them the manufacturers' agent is now and must long continue to be essential.

The COAST Outlet
ELECTRICAL CONSTRUCTIONISTS' and DEALERS' NEWS

Electrical Construction

By E. Earl Browne

THE term "Industrial Lighting" covers an infinite number of classes of users of artificial illumination, and as in general the class of equipment and methods of installation of both wiring and fixtures are similar for a certain use, it becomes simply a problem of ascertaining the use to which the different sections of the building are to be put and proceeding in accordance with certain recognized standards; i.e., in packing plants, etc. The cold storage rooms should have all work done with galvanized or sherardized or brass conduit and fittings and lead encased rubber covered wire, and all fixtures should be of the waterproof type with enclosing globes, and if there is any likelihood of breakage they should be equipped with brass guards. The switches for the control should be in the passageway (Fig. 1) and a receptacle and a ruby pilot lamp should be placed above the switch so as to show whether the lights in the rooms have been extinguished.

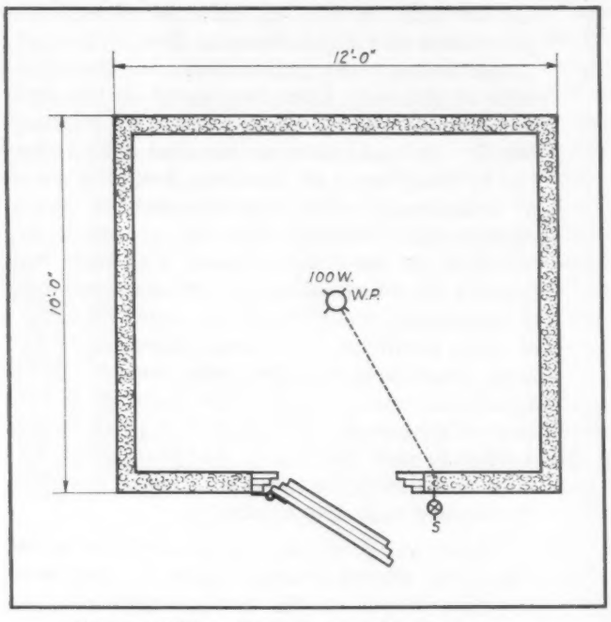


Fig. 1—Wiring diagram for cold storage room.

In plants such as dyeing and cleaning works where gasoline and other explosive vapors exist, the installation should consist of vaporproof receptacles and globes and the entire conduit installation should be put together with red lead and oil or litharge and glycerine, with all pipe outlets at fittings filled with a compound which will not melt at less than 140 deg. F. In certain acid and chemical plants the use of steel conduit is a waste of money and all conductors should be supported on insulators secured with brass or copper screws and bolts.

In vegetable oil plants the use of rubber covered wire is a source of continual expense and in these locations varnished cambric insulated conductors should be used.

Table of Foot-Candle Intensities Recommended for Different Classes of Service

	Minimum Intensity	Desirable Intensity
Assembling		
Rough	1	2 to 6
Medium	2	3 to 9
Fine	3	4 to 12
Extra Fine	5	10 to 50
Bakeries	2	5 to 10
Boiler Rooms, General	.5	2 to 4
Pumps, Condensers and Apparatus	1	4 to 8
Candy Making	2	5 to 10
Canning and Preserving	2	5 to 10
Chemical Works	.5	1 to 9
Construction		
Outdoor	.25	1 to 4
Indoor	.5	2 to 6
Dairy Products	2	4 to 8
Drafting Rooms	5	10 to 50
Electric Manufacturing		
Storage Batteries	2	4 to 8
Coil Winding, Mica Working, Insulation	3	6 to 12
Lamp Manufacturing	5	8 to —
Elevators, Freight and Passenger	.5	3 to 6
Forge Shops and Welding		
Rough	1	4 to 8
Fine	2	6 to 12
Foundries		
Rough Moulding, Cleaning	1	3 to
Fine Moulding, Core Making	2	
Glass Works		
Mix Rooms, Furnace Room	1	
Grinding, Blowing, Cutting		
Fine Grinding, Deco		
Cutting, Inspectin		
Glove Manuf		
Halls, S		
Ice M		

Table I.

In flour mills all apparatus should be so installed that it can be readily cleaned, as the continual gathering of dust in switch cabinets, etc., is a source of danger whereby the entire plant may be wrecked should a sufficient quantity accumulate and explosion result.

All wires for boiler gage and water column lights should have a slow-burning (Type S.B.) insulation, as the use of this is permitted for open work under Rule 26-g of the 1920 National Electrical Code and in conduit work under rule 26-n.

TABLE II

Foot-Candles of Illumination Recommended for Various Classes of Industries and Interiors.

The foot-candles recommended will fulfill the requirements most economically in the large majority of cases. Due to local conditions the values listed as "Under Some Conditions" may be desirable, such as the higher values where work is being done on dark goods or surfaces.

	Foot-Candles Recommended	Under Some Conditions
Armories, Public Halls	5	3-5
Assembling of Manufactured Articles:		
Rough	5	3-6
Medium	8	5-10
Fine	10	8-16
Extra Fine	....	10-50
Auditoriums	3	2-4
Automobiles:		
Garage	6	4-8
Manufacturing	8	5-10
Show Rooms	10	8-12
Storage	2	1-2
Bakeries	8	6-10
Ballrooms	5	3-8
Banks	8	6-10
Barber Shops	8	6-10
Billiard Rooms:		
General	3	2-4
Tables	10	8-12
Boilers, Engine Rooms and Power Houses:		
Boilers, Coal and Ash Handling, etc.	3	2-4
Auxiliary Equipment, Oil Switches, etc.	5	3-6
Switchboards, Engines, Generators, etc.	6	3-8
Bookbinding:		
Folding, Assembling	5	3-6
Cutting, Punching, Stitching	8	5-10
Embossing	10	8-12
Candy Making	8	5-10
Canning and Preserving	8	5-10
Chemical Works:		
Hand Furnaces, Boiling Tanks, etc.	3	2-4
Mechanical Furnaces, Evaporators, etc.	4	3-6
Cooking Tanks, Percolators, etc.	6	4-8
Laboratory	10	8-12
Churches	4	3-5
Clay Products and Cements:		
Grinding, Presses, Kiln Rooms	3	2-4
Molding, Cleaning and Trimming	5	3-6
Enameling	6	4-8
Coloring and glazing	10	6-12
Cloth Products:		
Light Goods	10	8-12
Dark Goods	15	10-20
Coal Breaking, Washing and Screening	3	2-4
Corridors	2	1-2
Court Rooms	5	4-6
Dairy Products, Ice Cream Making	6	4-8
Depots, Railway Stations:		
Baggage Room	5	3-6
Train Sheds, Concourse	4	2-5
Waiting Room	5	3-6
Drafting Rooms	15	10-20
Electric Manufacturing:		
Storage Batteries, Grid Molding	6	4-8
Coil and Armature Winding, Insulating	10	8-12
Elevators	5	3-6
Engraving	....	10-50
Erecting Shops	4	2-6
Forge Shops and Welding:		
Rough Forging	6	4-8
Fine Forging and Welding	10	6-12
Foundries:		
Charging Floor, Tumbling, Cleaning	5	3-6
Rough Molding and Core Making	6	4-8
Fine Molding and Core Making	10	6-12
Glass Works:		
Mix and Furnace Rooms, Pressing	5	3-6
Glass Blowing Machines	6	3-6
Grinding, Cutting and Silvering	8	5-10
Fine Grinding, Polishing, Inspecting, Etching and Decorating	10	6-12
Glass Cutting (Cut Glass), Fine Inspecting	....	10-50
Glove Manufacturing:		
Light Goods:		
Cutting, Pressing, Knitting	8	5-10
Assorting, Trimming, Inspecting	10	8-16
Cutting, Pressing, Knitting	10	6-12
Assorting, Trimming, Inspecting	....	10-50
Dark Goods:		
Gymnasiums	6	4-8
Forming, Pouncing, Finishing, Ironing:		
Light Goods	8	5-10
Dark Goods	10	6-12
Sewing:		
Light Goods	10	8-16
Dark Goods	....	10-50
Hospitals:		
Operating Table	....	10-50
Wards	3	2-5
Hotels:		
Dining Room, Lobby	6	4-8
Writing Room	10	8-10
Ice Making	6	4-8
Inspecting:		
Rough	6	4-8
Medium	10	6-12
Fine	15	10-20
Extra Fine	....	10-50
Jewelry and Watch Manufacturing	....	10-50
Laundries and Dry Cleaning	8	5-10
Leather Manufacturing:		
Vats	3	2-4
Cleaning, Tanning, Stretching	4	3-6
Cutting, Fleshing, Stuffing	6	4-8
Finishing and Scarfing	10	6-12
Leather Working:		
Pressing and Winding:		
Light Goods	8	5-10
Dark Goods	10	6-12
Braiding, Matching, Cutting, Sewing:		
Light Goods	10	8-16
Dark Goods	15	10-20
Libraries:		
Stack Room	3	2-4
Reading Room (with no local illumination)	10	8-10
Reading Room (with local illumination)	5	4-6
Lodge Rooms	5	4-6
Locker Rooms	4	2-4
Machine Shops:		
Rough Bench and Machine Work	6	4-8
Medium Bench and Machine Work, Automatic Machines, Grinding, Buffing and Polishing	10	6-12
Fine Bench and Machine Work, Fine Buffing and Polishing	12	8-16
Extra Fine Bench and Machine Work	....	10-50
Meat Packing:		
Slaughtering	5	3-6
Cleaning, Cutting, Cooking, Packing	8	5-10
Milling and Grain Foods:		
Cleaning, Grinding, Rolling	5	3-6
Baking and Roasting	8	5-10
Elevator Storage Bin	0.5	0.1-1
Flour grading	15	10-20
Moving Picture Theaters:		
Intermission	3	2-4
During Pictures	0.2	0.1-0.3
Museums	5	4-6
Offices:		
File Room	4	3-5
General and Private	10	6-12
Packing:		
Rough	4	3-6
Medium	6	4-8
Fine	10	6-12
Paint Manufacturing	7	4-10
Paint Shops:		
Dipping, Spraying, Firing	5	3-6
Rubbing, Rough Hand Painting and Finishing	8	5-10
Fine Hand Painting and Finishing	10	6-14
Extra Fine Painting and Finishing	15	10-50
Paper Manufacturing:		
Beaters, Machine Grinding	4	3-6
Calendering	6	4-8
Finishing, Cutting, Trimming	8	6-12
Paper Box Manufacturing	8	5-10
Pattern Shops	6	4-8
Plating	5	3-6
Power Houses	5	4-6
Polishing and Burnishing	8	5-10
Printing Industry:		
Matrixing, Casting, Miscellaneous Machines, Presses	8	5-10
Proof Reading, Lithographing, Electrotyping	10	6-12
Linotype, Type Setting, Engraving	....	10-50
Receiving and Shipping	4	3-6
Restaurants	6	4-8
Rinks, Indoor	4	3-5
Rubber Manufacturing and Products:		
Calenders, Fabric Preparation, Vulcanizing	8	5-10
Pneumatic Tire Building and Finishing	10	6-15
School:		
Assembly Room	5	4-6
Class Room, Study Room	8	6-10
Cloak Rooms	3	2-4
Drawing Room	15	10-20
Laboratory and Manual Training	10	8-12
Sheet Metal Works:		
Miscellaneous Machines, Bench Work	8	6-10
Punches, Presses, Welders, Fine Bench Work	10	8-16
Tin Plate Inspecting	15	10-20
Shoe Manufacturing:		
Hand Turning, Miscellaneous Bench and Machine Work	8	5-10
Inspecting, Sorting, Cutting, Light Goods	10	6-12
Inspecting, Sorting, Cutting, Dark Goods	20	10-50
Soap Manufacturing:		
Kettle Houses, Cutting, Soap Chip and Powder	5	3-6
Stamping, Wrapping and Packing	6	4-8
Steel and Iron Mills, Wire Product:		
Soaking Pits and Reheating Furnaces	2	1-3
Charging and Casting Floors	3	2-4
Heavy Rolling, Shearing, Picking, Cleaning	4	3-6
Automatic Machines, Light and Cold Rolling, Wire Drawing, Shearing by Line	6	4-8
Storage and Stock Rooms:		
Rough (no labels)	3	2-4
Medium	6	4-8
Fine	8	5-10
Stores or Departments in Large Stores:		
Art	8	5-10
Automobile Supply	6	4-8
Baker	6	4-8
Book	8	5-10
Butcher	6	4-8
Carpet	8	5-10
China	6	4-8
Cigar, Tobacco	10	8-12
Clothing	8	6-10
Confectionery	6	5-8
Dairy Products	6	4-8
Decorator	8	5-10
Drugs	8	5-10
Dry Goods	8	5-10
Electrical Supplies	8	5-10
Florist	6	4-8
Furniture	6	4-8
Furrier	8	6-10
Grocery	6	4-8
Haberdasher	8	6-10
Hardware	6	4-8
Hat	8	6-10
Jeweler	8	6-10
Leather (handbags, trunks, etc.)	6	4-8
Millinery	8	6-10
Music	6	4-8
Notions	6	4-8
Piano	6	4-8
Shoe	8	6-10
Sporting Goods	6	4-8
Stationery	6	4-8
Tailor	8	6-10
Variety Store	8	6-10
Structural Steel Fabrication	6	4-8
Sugar Grading	15	10-20
Testing:		
Rough	5	4-6
Fine	10	6-12
Extra Fine, Scale Reading	20	10-50
Textile Mills:		
Wool:		
Carding, Picking, Washing, Combing	4	3-6
Twisting, Dyeing	6	4-8
Drawing-in, Warping:		
Light Goods	6	4-8
Dark Goods	10	8-16
Weaving:		
Light Goods	8	5-10
Dark Goods	12	8-16
Knitting Machines	10	6-12
Theaters:		
Auditoriums	3	2-4
Foyer	5	4-6
Lobby	8	6-10
Tobacco Products:		
Drying, Stripping	2	1-3
Grading and Sorting	15	10-20
Toilets and Wash Rooms	4	3-6
Warehouses	2	1-2
Woodworking:		
Rough Sawing and Bench Work	5	3-6
Sizing, Planing, Gluing, etc.	8	5-10
Fine Bench and Machine Finishing	10	8-16

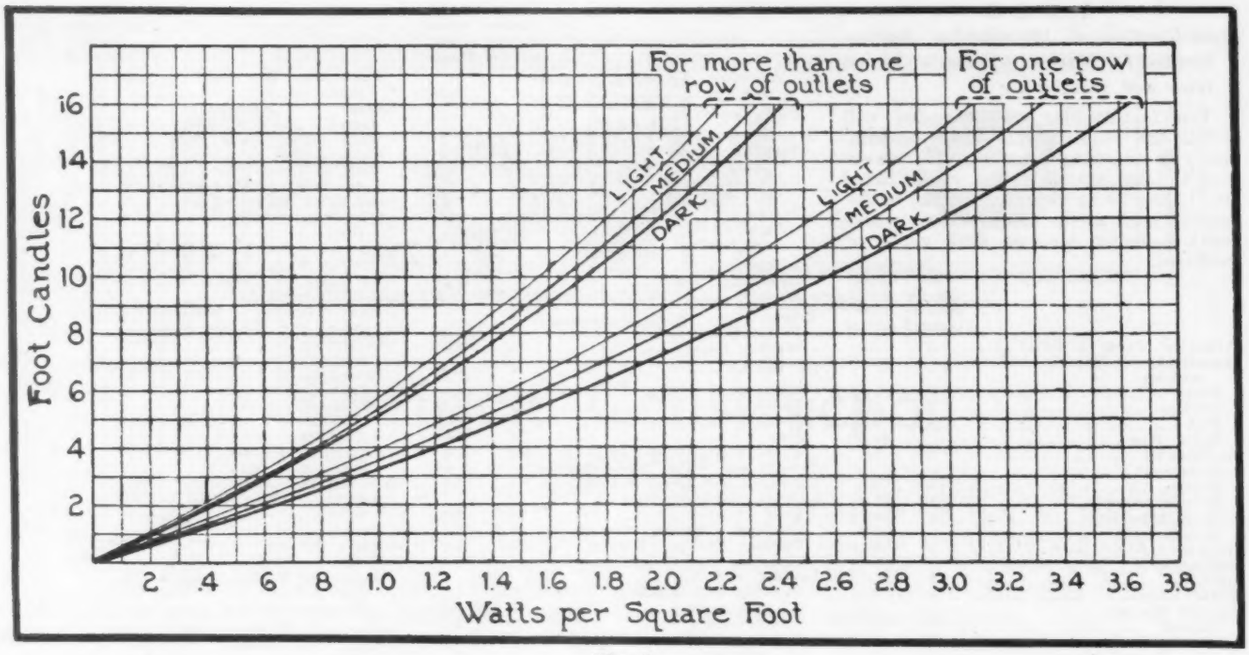


Fig. 2.

Except in special cases as cited above, the use of the now standard "R.L.M." (Reflector, Lamp, Manufacturers) dome type of reflector equipment, with Mazda "C" bowl enameled lamps, is the most desirable industrial fixture when considered as to reasonable first cost and efficiency.

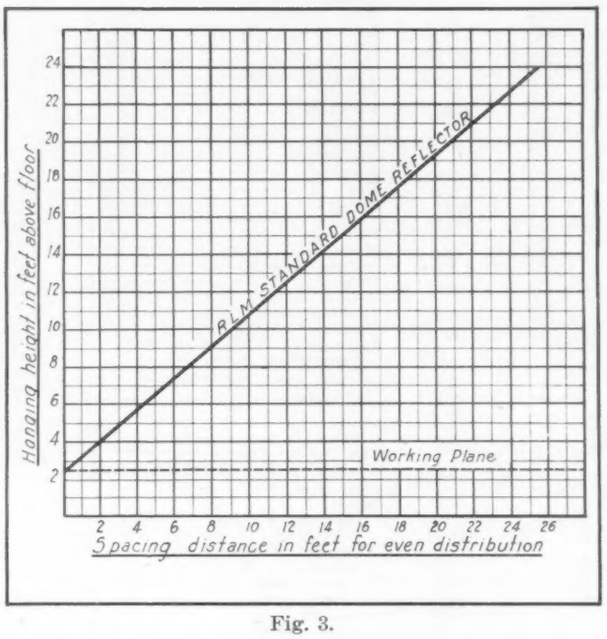


Fig. 3.

Several states have so-called "Lighting Codes" covering illumination of industrial plants, but as the minimum foot-candle intensities required are too low so far as efficiency in plant operation is concerned it is not advisable to even consider them. The recommendations of manufacturers have not to date been alike and they give limits of desirable intensity which are too broad. Table 1 is an example of this.

A more valuable table (Table 2) gives the recommended foot-candles. With this figure determined it is but necessary to lay the building into bays or squares and with the watts per square foot from curve (Fig. 2) determined, to multiply the area per bay or square in square feet by the W.P.S.F. and the result is the lamp size to use in watts. The next step is to determine the hanging height. As the distance between outlets is known from the lay-out of bays or squares a reference to Fig. 3 is but necessary to arrive at the correct result.

As an example:—Wood working shop for fine bench and machine finishing:

Building 50 ft. x 150 ft.
Ceiling 18 ft. (dark)
Walls (dark)
From Table 2 (10) foot-candles
Bays 16 2/3 ft. square—(278 square feet)
From Fig. 2—1.7 watts per square foot
278 × 1.7—473 watts (use 500-watt)
From Fig. 3—16½ ft. is proper mounting height.

As Rule 23, first paragraph, of the Code allows but 660 watts per circuit, but one of these can be placed on a circuit. The third paragraph of the same rule, however, allows 1,320 watts per circuit by special permission where No. 14 B. & S. rubber covered wire is carried direct into keyless sockets or receptacles and where the location of these sockets and receptacles renders unlikely the attachment of flexible cords thereto. Also where, as in this case, Mogul sockets or receptacles not having fibre or paper lining are used, the circuit may be loaded to 4,000 watts provided No. 12 or larger wire is used to wire such sockets and receptacles and that the taps from the circuit wires are not over 18 inches long. This would then allow eight of the 500-watt units on a circuit, but as this number might be greater than is economical to give convenient control and also as the panel board would be more expensive due to the fact that it would be made up of 60-ampere switches fused to 35 amperes, it is more desirable to install two units on a circuit under the 1,320-watt rule as the difference in cost of conduit and wire is small in comparison with the future saving of current by more controls.

Present Retail Salesman's Creed in Westinghouse Booklet

A creed for retail salesmen drawn up by Joseph Luchs & Staff, Inc., has been printed in the Christmas issue of Counter Points, a publication of the Westinghouse Electric & Manufacturing Company. The creed is printed in the form of resolutions and is as follows:

THE 100% CREED
of
RETAIL SALESMANSHIP

Believing in the value, importance and dignity of my occupation as assistant to the public in promptly and conveniently supplying its manifold requirements; and in order to fulfill my responsibility acceptably to my customers, to my employer and to myself

I am Resolved

(1) To treat each customer with the courtesy that springs from genuine friendliness and respect.

(2) To have more thought for the customer's final satisfaction than for the amount of the immediate sale.

(3) To know my stock—and to be accurate in statements about merchandise.

(4) To be as attentive to the purchaser of an inexpensive article as to one whose needs are more elaborate.

(5) To seek a clear understanding of the customer's exact requirements, that I may present merchandise which is precisely the thing desired.

(6) To be patient with the customer who is provoked; prompt with the customer who is hurried; sympathetic with the customer who is puzzled; considerate of those who are difficult to satisfy and hospitable to those who are strangers in my store.

(7) To be friendly but not familiar; cheerful, but not boisterous; to give information, not advice.

(8) To keep my service up to the standard of my merchandise.

(9) To increase my sales, not by means of persuasion or trickery, but by making customers feel that this is a store in which they are served pleasantly, capably and promptly; so they will wish to do as much of their buying here as their needs prmit.

(10) To be loyal to my employer, considerate toward my associates and thereby keep true to myself.

Electrical Wholesalers' Credit Club Holds Monthly Meeting

A very interesting address was given by W. L. Goodwin, operating vice-president of the Society for Electrical Development, New York, N. Y., at the regular monthly meeting of the Electrical Wholesalers' Credit Club, held at the Palace Hotel, San Francisco, Calif., recently. There were fifty-two members and guests present to hear Mr. Goodwin who spoke at length of the work of the society and of the needs of the electrical industry in general. He also dealt in detail with existing electrical merchandising methods and with certain necessary reforms. He gave a broad vision vew of the potential market for electrical material and appliances and stressed the importance of cooperative thinking and action in the development of the manufacture and distribution of electrical merchandise.

The Electrical Wholesalers' Credit Club is an organization composed of electrical jobbers located north of the Tehachapi Mountains and has for its aims and purposes objects similar to other organizations of like nature. The club is working for a higher standard of merchandising and for a better maintenance of dealer credits. In addition to regular executive sessions, the club holds weekly luncheon meetings and monthly dinners.

George Curtis, of Universal Electric Company, San Francisco, Calif., is president and A. R. Fierce, of Wholesale Electric Company, San Francisco, Calif., is secretary. Walter A. Dold is attorney for the club.

Jim Redpath is here seen gazing forth into the future. This is Jim's specialty, especially in regard to association matters for he always works with a vision of extensive, state-wide membership.

Sacramento Association Elects New Officers for 1924

C. V. Schneider, of the Electrical Supply Company, Sacramento, Calif., was elected president and R. J. Finchley, of the California Mechanical & Electrical Engineering Company, Sacramento, was elected vice-president of the Electrical Contractors' and Dealers' Association of Sacramento at the recent annual election held in that city. The Executive Committee is composed of the following members: M. P. Cannon, of Latourette-Fical Company; G. C. Foss; W. Beamer, of J. A. Hobrecht Company; C. Vining; and L. M. McGinnis, of Scott Plumbing and Electrical Company. Roy N. Phelan is secretary-treasurer of the association.

Sacramento Valley Society Has Successful Dinner Meeting

On Dec. 12, 1923, over fifty members of the Sacramento Valley Electrical Society gathered at the Hotel Land, Sacramento, for the regular monthly meeting of the society. Dinner was served at 6:30 p.m.

Fred Links rendered two solos that were much appreciated by everyone and also led the group singing.

F. D. Bennett, of the radio department of Weinstock-Lubin Company, Sacramento, Calif., gave a most interesting talk on radio, describing the modern broadcasting stations, their methods of operation and the work they are doing. He spoke of the government regulations and the different classes of stations, and then briefly explained the various parts of a receiving set and their uses. He told of the several different types of antennas used with particular reference to the directional loop antenna.

Kimball-Upson Company broadcasted that evening for the special benefit of the society, the music from the Hotel Sacramento orchestra being received in the banquet room of the Hotel Land.

Accountant Addresses Alameda County Association

More than twenty-five members of the Electrical Contractors' and Dealers' Association of Alameda County were in attendance at the Dec. 11 meeting of the organization held in the Builders' Exchange Building in Oakland, Calif. F. V. Mitchell, San Francisco public accountant, was the principal speaker of the evening.

Mr. Mitchell, by using a set of figures taken from the books of an electrical contractor-dealer, showed the members of the Alameda County association the relation of overhead to gross sales and also to costs of material and labor. The three branches of the contractor-dealer's business were treated separately, thus showing a different percentage for overhead for contracting, fixture sales and appliance sales. A considerable amount of discussion followed Mr. Mitchell's talk.

At the same meeting, T. L. Rosenberg, of the Quality Electric Motor Company, and the re-elected president of the organization, announced the appointment of various committees. The committee personnel is as follows: Standardization Committee, H. N. Wright, Blundon & Wright; C. D. Bronson, California Electrical Construction Company; and R. H. Green, electrical contractor. Legislative Committee, H. H. Hoxie, Hoxie & Meech; R. H. Conrad, Conrad Electric Company; and Robert Norling, J. P. Maxwell Company. Jobbers' Committee, Edward Lickis, F. E. Newbery Electric Company; J. J. McCourt, Cooperative Electrical Company; and W. E. Scott, Scott-Buttner Electric Company. Membership Committee, Al. Weber, Paramount Electric Company; and G. E. Ortman, Ortman Electric Company. Attendance Committee, Sam. Bushman, Bushman Electric Company; R. E. Conrad, Conrad Electric Company, and E. C. Heister, Advance Electric Company. Joseph Croter is the secretary of the association.

JOBBER, DEALER AND SALES AGENT

Telling the Story in the Palace of Electricity

Over Three Hundred Thousand People Visit Electrical Section of Annual California Industries Exposition

A Palace of Electricity, the first of its kind ever to be presented in connection with the California Industries Exposition, was open to the public in San Francisco, Calif., from Nov. 17 to Dec. 2. The display which was presented to the visitors was made possible through the cooperation of the electrical concerns that participated in the exposition. The Exposition was held in the Civic Auditorium.

At the two previous expositions, which were also held in the San Francisco Civic Auditorium, electrical exhibits were scattered over the entire floor space used by the exposition. As a result the visitor to the exposition was not particularly impressed with the importance of the electrical industry. This was due partially to the fact that there were so many other exhibits sandwiched in between the electrical displays that the public on passing through the display room, drew the conclusion that the electrical exhibits were merely parts of a heterogeneous exposition and that the electrical industry was not making an effort to present a unified display. This fact tended to reduce the impression that was made upon visitors. Individual exhibitors did not receive the same benefits from the exposition that it was possible to secure where the entire industry had its displays grouped in one central location.

The value of the cooperative display center was proved completely by the foodstuff exhibitors at the exposition in 1922. All of the concerns that handled foodstuff occupied booths that were located on one side of the hall. Visitors to the exposition were impressed with the apparent size of the foodstuff exhibits as the importance of the entire display was greatly enhanced by the method of grouping.

Following the example set by the foodstuff exhibitors, the electrical industry of the San Francisco Bay region determined to present a unified display which would attract the attention of the public because of its completeness. Arrangements were made to secure the entire floor space of the Polk Street Hall of the Auditorium as a space in which the electrical industry could present its exhibits. As this hall has an area of 8,000 sq. ft., ample space was available for use by members of the electrical industry. Rules were made by the exposition manager that only electrical concerns could present displays in the Palace of Electricity and this was the only location in which electrical exhibits could be placed. These rules were made primarily with the purpose of keeping non-electrical exhibits from the Polk Street Hall. In addition to doing this, the rules set the hall out as a definite section of the exposition and in this way the Palace of Electricity came in for much advertising that would not have been given the electrical exhibit if all of the displays had not been grouped in one place.

During the formation of the plan to have a Palace of Electricity at the California Industries Exposition, the San Francisco Electrical Development League agreed to sponsor the electrical exhibits. A committee, headed by C. L. Chamblin of the California Electrical Construction Company, was appointed to cooperate with A. A. Tremp, the manager of the exposition, in order that the electrical industry might receive the greatest benefit from the exposition. This committee acted for both the electrical industry and the management of the exposition and was largely responsible for the success of the affair.

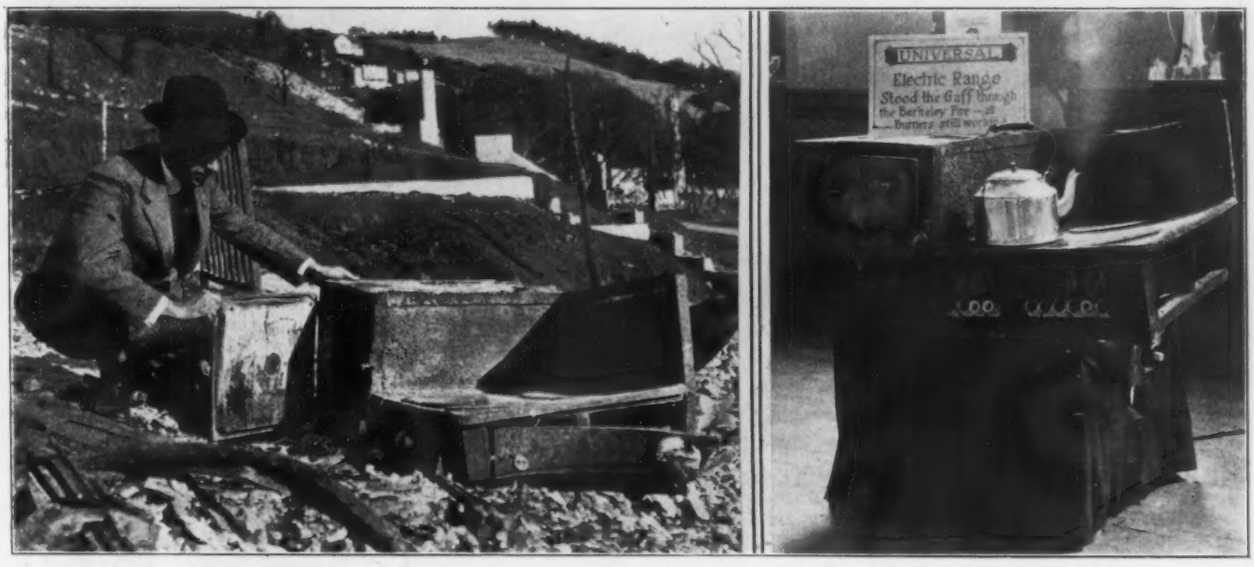
This committee cooperated with exhibitors in planning the type of booths that were to be built in the Polk Street Hall, in order that all might be of the same type, and in addition to this arranged for a distinctive lighting arrangement for the entire hall. Blue and gold streamers were used to advantage in decorating the Palace of Electricity and the lighting plan carried out this same color scheme.

This general decorating was done under the direction of the committee, the cost being apportioned among the exhibitors. Approximately six hundred and fifty dollars was spent in this manner. Returns from the money spent in this way were most satisfactory as the decorative scheme was entirely different from that used in other parts of the Civic Auditorium.

Twenty-four concerns entered displays in the Palace of Electricity, this number of firms using nearly forty booths. While manufacturers used a considerable portion of the space, dealers and the two central station companies were also represented. The California State Association of Electrical Contractors and Dealers presented a booth that urged the home builder to require better wiring standards. A sign at one end of the hall announced that the Palace of Electricity was sponsored by the San Francisco Electrical Development League while one at the other end suggested the using of electricity for cooking and the giving of electrical Christmas presents. The California Electrical Cooperative Campaign also had its Better Merchandising display on the floor of the hall.

Interior of the Palace of Electricity facing east. The lighting effect was planned specifically for the exposition.

One of the novel displays presented in the Palace of Electricity was that of Landers, Frary & Clark. The display was arranged by Herbert A. Cram, Pacific Coast representative of the manufacturer, and had as the central exhibit an electric range that had gone through the Berkeley fire. The range, at the time of the fire, was installed in one of the homes in the burned area and was exposed to the tremendous heat during the conflagration. After the ruins had cooled the range was removed from the site of the burned home and was brought to San Francisco. On testing the elements it was found that each of them was still in good order and that foods could be cooked on the burners. To show that the heating elements were still in good condition, Mr. Cram placed a tea kettle on one of the burners. Throughout the day steam came from the spout of the kettle, showing that the elements had withstood the ravages of the fire. A picture of the range as it looked amid the ruins of the Berkeley home was also a part of the exhibit.



The range seen at the left, amid the ruins of the Berkeley home in which it was installed and the one at the right, boiling water in the tea kettle, are the same. The picture reproduced at the left and the range were parts of the Landers, Frary & Clark exhibit.

Other exhibitors presented displays of manufactured products and in most cases featured no particular item. All of the exhibitors paid careful attention to visitors, the attendants at the booths being instructed to give any information that it was possible to give, to interested persons. A considerable quantity of literature was used by the concerns who had booths in the Palace of Electricity and it is reported that visitors were, on the whole, anxious to secure any matter relating to the possible electrification of their homes or industrial plants.

No accurate check as to the number of persons who entered the Palace of Electricity was made, so it is not possible to state exactly how many people visited the electrical exhibits. The total attendance at the exposition was 362,000 and practically every person who visited the exposition entered the Palace of Electricity. In a number of cases sales resulting from work done at the exposition have been reported. In other instances, inquiries received after the close of the exposition have been traced directly to the contact secured at the Palace of Electricity.

According to exhibitors, a significant thing in connection with this display and which may be taken as indicative of the future major application of electricity, was the great interest shown in the major domestic electric appliances such as electric air and water heaters and electric ranges. Manufacturers of these devices reported that they were overwhelmed with requests for information as to these forms of application and that they secured a sufficient number of good prospects, during the show, to more than warrant the expenditure and the effort involved. Many actual sales were made during the exhibit and many more sales either were promised for the near future or will materialize within a short time. Particularly interested were those who are now building or who are about to do so. The possibility of building into houses those comforts which electricity makes possible and of converting houses into homes had a strong appeal to all and resulted in a satisfactory sales follow-up. Merchants and others engaged in the sale of domestic electric heating equipment were well satisfied with this method of displaying their products.

On facing west, the visitor to the Palace of Electricity obtained the view reproduced above.

The window at the left shows how lights improperly focused and without shields produce only a glare and do not correctly illuminate the display. With the same wattage, in the window at the right, the illuminating expert secured the result shown. The displays are those of a leading Salt Lake City jeweler.

Show "Before and After" Views to Your Prospects

Window Displays and Pictures May Be Used to Indicate Results that May Be Secured by Proper Electrification

"Ladies and Gentlemun! Here on my right hand we have the life-sized picture of an emaciated skeleton as he appeared six weeks ago. Then, ladies and gentlemun, this physical wreck, all skin and bones, started taking Bivouac, that marvelous tonic that builds you up over night, and now he looks as you see him in the flesh, at my left. Emil Palanzo, ladies and gentlemun, put on 92 lb. in four weeks. Bivouac did it, ladies and gentlemun. How many bottles at the price of 98 cents for one, $1.29 for two, shall I wrap up for you? What Bivouac did for Emil Palanzo it will do for you, ladies and gents."

Though the electrical contractor-dealer will not find that this method of presenting his products and services to his customers is the best that he can employ, he may secure a definite message from the selling talk that the street vendor uses. Instead of dragging a soap box to the corner where he can present his Punch and Judy show and give his selling talk to a group of idlers, the electrical contractor-dealer announces himself and his products to thinking men and women through the columns of the newspaper. The electrical merchant also uses his display windows to attract attention to his establishment by presenting samples of his stock.

The purpose of the electrical contractor-dealer and the street vendor is the same—to sell services and merchandise.

Proper window lighting lends itself most readily to presenting the "before and after" message. Electrical retailers who wish to concentrate on increasing business in connection with window lighting work, and who have two display windows, are most favorably situated. One of the windows can be used to illustrate lighting conditions as they might appear before a competent illuminating specialist was called in to plan the method of lighting the window. The second window could show how much more attractive the display could be made by installing proper illuminating equipment.

In Salt Lake City, Utah, the windows of one of the leading jewelers were used to illustrate the "before and after" message. One of the windows was lighted with dome lights, improperly focused and being placed so that the lights presented a glare to the eyes of the window-shopper. In the second window the same wattage was used, but the light was directed and a valance was hung from the top of the window to keep the direct rays from the eyes of anyone standing in the street. The results, as anyone viewing the two windows could plainly see, were entirely different. The first window, despite the fact that there were a sufficient number of lamps lighting it, presented a very poor display because of the way in which the light was directed. The second window, because of the fact that all of the factors governing the illumination were taken into consideration, stood out from the adjacent display and attracted much more attention.

TIMELY RESOLUTIONS FOR NEW YEAR RESOLUTIONISTS

By JOE OSIER

Now that Father Time (nee Kid '23) has flivvered noisily past, down the long road to Oblivion, his tail-light blinking in the distance, and—

Kid '24, in a high-powered speedster, is booming along the straight-away with his cutout open—

The time has come for men in the Electrical Industry to retire to their offices and compose some snappy New Year resolutions to govern their actions during the coming twelve months.

To assist them in their labors, seeing that I am an admitted authority on thumbtacks, medium-priced cigars and commuting, I offer the following resolves, which I would make and keep were I in the business:

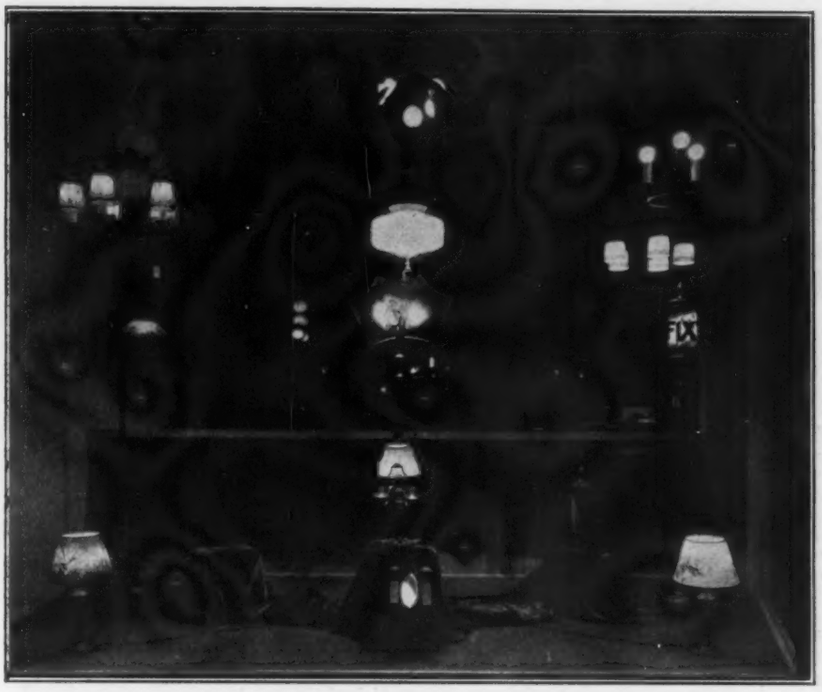
RESOLUTIONS

1. During 1924, I shall think in terms of service, rather than acquisition. I shall cut the mustard from my customers—work in their interests, resting assured that tin in my till will result.
2. I shall be loyal to my employees. I shall treat them fairly—like I expect them to treat me. I shall be kind and considerate, realizing that friendly words and cheery smiles cannot be placed in a pay envelope.
3. I shall be cheerful and optimistic. No matter how dour the day or dismal the immediate future, I shall not admit defeat, nor will I ever quit cold. I shall battle from gong to gong.

HAVE YOU SIGNED?

4. I shall be sure that I am on the right trail — then I'll mush on, breast-forward, never doubting the ultimate outcome.
5. I shall, absolutely, refuse to buy volume or contracts. Unless I can foresee where my share of the gate is coming from, I shall not don the spangles nor do my dance. Yea, verily, I shall count noses and figure up how much glue is forthcoming, because my days of harmonizing for nothing are done and gone.
6. I shall always be friendly and fair with my competitors, granting them an equal right to live and work and prosper. When I am aced out of a contract, I shall not bellow nor bluster, squeal nor squawk.
7. I shall not forget how to play—to laugh—to enjoy life. I shall foregather with the boys in my game on every occasion—business, social or otherwise. No meeting of my Association will be called but that I am parked in the front row. And, I shall lift my voice in approbation and words of optimism shall fall from my lips.
8. I shall keep my fingers on the pulse of my business, giving the air to non-essentials, non-producers and nonentities. Anybody and everything that is good and proper shall be blessed—contrary bounced.

I shall keep these resolves, s'help me.



Window display of the Seattle Lighting Fixture Company which shows what results may be obtained from using various individual lighting units.

Let the Display Sell Results Instead of Materials

Seattle Lighting Fixture Concern Uses Show Windows to Exhibit Illuminating Qualities of Various Units

"Sell holes, not augers," is the motto of the sales force of one of the largest bit manufacturers that sells not only to large construction companies but to jobbers in hardware material. The line of logic behind this motto is that the hole is the thing that the ultimate consumer is interested in and not in the means which he uses to secure the hole.

For the branch of the electrical industry that devotes itself to the manufacture and sale of lighting fixtures the salesman's motto might be changed to read "Sell home beauty and eye comfort, not metal and glass." The reason for this is that the housewife, who is the ultimate consumer of electrical lighting fixtures, is not interested in the materials that the fixtures are made of, but rather in what results she will obtain by using those fixtures in her own living room or kitchen.

A cheap white glass reflector might prove to give the residents of the home just as much light as a higher priced fixture which was built in a more decorative pattern. If the sales talk was directed along the lines of material and price, it might prove that the glass reflector would be more substantial and at the same time less expensive. On the other hand, if the prospective customer were approached with the statement that the ornamental fixtures would tend to beautify the interior of her home both in the day time and at night when they were lighted, she would immediately see that the decorative fixtures, despite their higher cost, would be the most suitable for her needs.

Add to the fact that the well designed fixture will beautify the interior of the home, the fact that the higher priced fixture will give a light that is much easier on the eyes and the two sales arguments will in most cases tend to close the sale. If the salesman can secure from the prospective customer such information that he can be able to determine what fixtures are most suitable in the particular home, he will be rendering a great service to the customer by making suggestions as to what type of fixtures should be installed. By inferring that the installation of proper fixtures is a matter of personal interest and that he desires to see the home well supplied with equipment that will make for both beauty and comfort, the salesman will be placed in a position of confidence with the customer and will stand a much better chance of making the sale than if he just talked materials entering into the equipment.

The same method of reaching sales can be used in the presenting of window displays. The purpose in presenting any display is to attract attention and to bring about the desire for ownership in the person who stops to see the exhibit in the merchandiser's window.

Results are what the houseowner, that the exhibitor hopes to attract by means of the display window, is interested in and not particularly in the means that are used to secure these results. Thus the window decorator should endeavor to dress his show windows in such a manner that they will present an idea of what the particular type of fixture will do in the way of producing lighting effects. In many cases it is not possible to reproduce, in the display window, the conditions under which the articles on exhibit will be used and in these cases the decorator will be forced to present as nearly similar conditions as he is able. The plan may also be used of not attempting to reproduce the conditions under which the merchandise is to be used, but rather of presenting the product in such a way that it will show what can be accomplished by the use of the merchandise.

The Seattle Lighting Fixture Company of Seattle, Wash., recently presented a window display of the latter type to the people of Seattle. As it was not practical to simulate home conditions in the window the decorator endeavored to present a display that would show what the various classes of fixtures would do in the way of providing illumination. A small number of fixtures was installed in the window and connected so that at night the effect of each type of fixture might be shown to persons who passed by the store. The fixtures were arranged in an attractive manner and care was taken not to put too many in the window. Dark colored velvet was used to form the back board of the display window and three pedestals, used as stands for small fixtures, were also covered with this material.

In this way an exceptionally attractive display was secured. The purpose of the window was to show just what certain fixtures would do for the purchaser. As the fixtures were in semi-isolated positions it was possible for the persons viewing the display to really tell just what each unit would do in the way of furnishing illumination.

In the display presented the Seattle Lighting Fixture Company was appealing not only to the retail purchaser but also to dealers who might see it as the company is one of the largest manufacturers and distributors of lighting fixtures, glassware and fittings in the Northwest. A manufacturing plant is maintained in Seattle and there all types of fixtures for street, commercial and residential lighting are produced. The concern is managed by Walter Funfsinn, who has been associated with the company for a number of years. A branch, which serves as headquarters for salesmen covering the state of Oregon, is maintained in Portland.

The cooking school has also been used to demonstrate results. Domestic science lecturers have not spoken regarding the value of the particular range that they used, but have stressed the benefits to be secured from cooking electrically.

INDUSTRIAL NEWS

Southern California Edison Co. Announces Large Budget

The expenditure of $26,288,000 during 1924 for new plants, distribution and transmission lines and substations is included in the development program of the Southern California Edison Company, that was recently accepted by the board of directors of the company. This will bring the total amount expended since 1918 to $118,000,000.

The major items included in the budget are:

Florence Lake tunnel	$5,879,000
New Units in Big Creek power houses No. 1 and No. 2 to be placed in operation in 1925: 25,000 kva. in Power House No. 1 / 16,000 kva. in Power House No. 2	2,100,000
Dam and tunnel work	1,700,000
Distribution lines	5,943,700
Distribution substations	2,394,000
Transmission lines and stations	1,106,510

An addition will be made to the Long Beach steam plant of the company which will increase the capacity of that plant by 70,000 kw. It is planned to house two 35,000-kw. horizontal steam turbines in a separate building adjacent to the present power house. Eight 1,600-hp. boilers will be installed in the addition. Oil and gas burning furnaces will be used in the plant.

The company also proposes to construct four new 60,000-volt circuits on a new steel tower line adjacent to the present line leading from the Long Beach station. This line will provide means for distributing the power from the new steam plant. It is expected that delivery of the equipment will be made in time to permit the placing of the plant in operation early in 1925.

Aberdeen Power Project Halted by Restraining Order

The newest obstacle in the path of the proposed development of the Wynooche power project, on which the citizens of Aberdeen, Wash., at the recent city election voted to expend $2,000,000, is the securing of a temporary injunction by Frank O. Dole of Aberdeen, restraining the city from entering into any sort of contract with Joseph Malinowski, for his power rights on the Wynooche. The injunction further restrains the city from expending any funds for acquisition or maintenance referred to in the ordinance recently passed by the voters. Mr. Dole's complaint states that the ordinance is void because it carried by but 100 votes out of 2,984, whereas to pass, it must have a three-fifths majority. The complaint also claims that proceeding with the project will make the debt of Aberdeen greater than the 10 per cent of the real and personal property valuation of the city which is the legal limit.

City councilmen, following the ratification of the project by the voters, immediately took steps to secure from Mr. Malinowski his water rights in the Wynooche. An optional purchase had been arranged, final purchase and payment being dependent upon further investigation and gagings which the city engineering force will make. If the project cannot be built for $2,000,000, the matter will be resubmitted to the voters to ascertain whether they want more money to be spent on the project. Mr. Malinowski has left with the mayor and the city council the matter of placing a valuation upon his rights, with the right to have expert evidence presented as to the value.

Permits Issued for Idaho and Montana Power Projects

A preliminary permit for a period of two years covering a power project on Crane Creek, a tributary of the Weiser River, in Washington County, Idaho, has been issued by the Federal Power Commission to the Southern Idaho Land & Power Company, of Weiser. According to the permit the project works are planned to consist of a diversion dam, a storage reservoir, conduit and power house, and will have an estimated maximum installed capacity of about 25,000 hp. The probable market for the power will be the three irrigation districts in the vicinity of the project.

The Commission, at the same meeting, issued a preliminary permit for a period of two years to the Mineral Range Power Company of Columbus, Mont., for a power project on Woodbine Creek and Stillwater River at a point about 48 miles from Columbus. The project, it is estimated, will have an installed capacity of 3,000 hp., and will consist of a diversion dam, water conduit and power plant. The project is destined to supply power for mining, public utilities and the operation of an electric railroad.

Early in 1924, the Similkameen power plant of The Washington Water Power Company will be doubled in capacity by the completion of the new unit now being installed. The plant will then consist of two generators and turbine with combined capacity of 4,300 hp.

The Long-Bell Lumber Company, at Longview, Wash., has recently awarded to the Pittsburgh Transformer Company of Pittsburgh, Pa., through their Seattle representative, Eicher & Bratt, contract for a transformer bank of 27 units of 22,600 kva. each, costing $80,000. The transformers will be used in stepping up the voltage at the power plant and logging camps, and for use in supplying light to the town of Longview.

Supervisors Vote to Evaluate San Francisco Systems

The San Francisco Board of Supervisors, on Christmas Eve, passed to print the resolutions requesting the California State Railroad Commission to place valuations on the San Francisco distributing plants of the Pacific Gas and Electric Company and the Great Western Power Company. The action was taken with an ultimate view of acquiring the properties of the power companies for municipal distribution of power in the city.

Various members of the board estimated that the cost of the valuation by the Railroad Commission would be between $100,000 and $200,000. The opinion of the board is that it will take a year for the valuations to be made by the Commission.

Opposition to the resolution was voiced by Ralph McLeran and John A. McGregor, who held that the city could not afford to spend the money on the appraisal at the present time. Supervisor McLeran also stated that within the next 60 days the voters would be called upon to approve a bond issue to complete the Hetch Hetchy water project and that the city could not expect to receive support from the 25,000 stockholders of the Pacific Gas and Electric Company, who live in San Francisco, if the city intended to condemn their property. He claimed that if the city acted to condemn the properties of the power companies, the bond issue for the completion of Hetch Hetchy would be defeated.

Filing on Bear River Is Made by Utah Utility Company

The Utah Power & Light Company has filed application with the state engineer of Utah for the use of 2,500 sec.-ft. of water from Bear River in Boxelder County and the right to store some 75,000 acre-feet of water from the same source.

Use of the 2,500 sec.-ft. flow is asked for the entire year. The storage right is asked to cover the period from Oct. 15 each year to July 1 of the following year.

The filing is made for the purpose of utilizing more effectively the water at the various seasons of the year at the company's Wheelon plant in Bear River Canyon.

The diverting works are described as a concrete overflow gravity type dam.

The new standard system of street lighting in Aberdeen, Wash., has been completed by the Ne Page McKenny Company, of Seattle, at a cost of $20,000. Seventy-nine lamps were installed.

Washington Superpower League Opens Seattle Office

The Washington Superpower League, organized recently in Seattle, Wash., for the purpose of supporting and fostering the passage of legislation to permit cities to sell power outside their boundaries, has opened headquarters at 225 Railway Exchange Building, with Ralph D. Nichols, the secretary, in charge. Units of the league will be organized throughout the state, and the cooperation of labor unions, granges, city clubs and other public ownership organizations, is invited. The Erickson bill and Bone bill, both permitting cities to sell power outside their boundaries, will be immediately taken under consideration by the league.

The Seattle Municipal League, meanwhile, has gone ahead with its work of co-ordination of the various proposals for the control of the state's water power resources, and has issued a call for a state-wide conference of power enthusiasts to be held in Seattle shortly to consider every phase of the matter. Whether the Washington Superpower League, which was the original state power organization, will cooperate with the Seattle body is uncertain. The plans tentatively fostered by the promoters of the Seattle conference are said to be not in accord with the wishes of the so-called superpower group.

Power Company Resumes Work on Owens River Project

Construction work on the Owens River Gorge plant of the Nevada-California Power Company has been resumed. The plant when completed will have a capacity of 13,400 hp. The project will cost in the neighborhood of three and one-half million dollars. Excavation for the forebay is now in progress.

Transformers and transmission lines to deliver the power to consumers were installed at the time that the Adams plant was erected on the Owens River by the Southern Sierras Power Company, a subsidiary of the Nevada-California Electric Corporation which is also the parent company of the Nevada-California Power Company.

Construction was stopped during the suit of the City of Los Angeles when that municipality claimed that it had the rights to all of the water of the Owens River. The power company won the right to the waters of the river and the present work is being done as a result.

Celebrate Ground Breaking for Tacoma's Electric Home

With Mayor Fawcett and other city officials of Tacoma, Wash., in attendance, and a group of thirty business men representing the building and allied trades, ground breaking was celebrated recently for Tacoma's first model electrically equipped home. The house from attic to basement will be electrically equipped, and will represent the most modern ideas in this form of home-building. The structure will contain seven rooms, solarium and bath, and will represent an expenditure of from $10,000 to $12,000.

Previous to the ground breaking, announcement was made that a cash prize of $50 would be awarded to the individual living in southwestern Washington who submitted the best name for the electric home. It was suggested that this name embody in three to six words a suggestion of the convenience afforded the householder by electrical appliances.

While the home is intended to represent model living conditions on a moderate scale, it is primarily intended as a display of modern electrical work-saving appliances, and electrical men of Tacoma plan to demonstrate every known device for household convenience. The kitchen will be equipped with an electric dishwasher, ventilating fan, electric range, all sorts of small electrical equipment, and an electric refrigerating plant. A complete electrically equipped laundry will feature the basement. In addition to the electric furnace an emergency furnace using coal or wood, and equipped with electrical circulator, will be provided. Special lighting equipment and a multitude of outlets in each room are provided.

A large garage, equipped with electrical vulcanizer, radiator heater, tire pump, magnet and portable lights, is to be provided.

Following the ceremony of ground-breaking, at which Llewellyn Evans and B. R. Nichols of the municipal light department, gave brief addresses, the group visited the city hall annex, where a model of the Lake Cushman project is in process of construction, details of which were explained at length by J. L. Stannard, chief engineer of the project.

The Tacoma electric home will be constructed by Clarence E. Brown, realty dealer, from plans provided by Shaw & Shaw, architects, Tacoma Building. It is planned to have the home completely finished and furnished by March 15, and to have the house open for public inspection for a period of 30 days.

The city council of Sacramento, Calif., has unanimously approved a proposition looking to the establishment of a union street railway terminal for that city. The plan is to provide terminal facilities for the electric interurban roads which connect Sacramento with San Francisco Bay and also the cities of the northern Sacramento Valley. Certain regulations are laid down by the council such as provision that traffic shall be one way only over a set of tracks and that adequate clearance for street traffic must be provided at turns. A franchise is granted for track extensions necessary to enter the new terminal with the provision that this franchise will be withdrawn in the event of abandonment of the terminal.

It is reported that cable advices from Japan have been confirmed to the effect that the Westinghouse International Company and the Mitsubishi interests have effected a consolidation for the purpose of manufacturing in the Japanese territory. The new firm is to be known as the Mitsubishi Denki Kabushiki Kaisha (Mitsubishi Electric Manufacturing Company). It is said to be the intention of the new company to manufacture electrical machinery and supplies in Japan and to handle such Westinghouse products as are made in America and exported to Japan. The firm of Takata & Company, of New York City, are also reported as interested in the consolidation.

Electrified Lumber Mill to Be Erected Near Victoria

E. J. Palmer, vice-president and managing director of the Victoria Lumber & Manufacturing Company, whose plant at Chemainus, on Vancouver Island, was destroyed by fire in the latter part of November, has announced that the company is preparing plans for the erection of a new mill, which will have a capacity of 100 million feet of lumber per year and will be the largest lumber mill in British Columbia.

The whole plant will be electrically driven, the greater part of the electricity will be generated by steam, generated in turn, by the combustion of what in the past has been largely waste material. The new mill and allied plant will require 10,000 hp.

Mr. Palmer will retire from the active management of the company, with which he has been associated for 34 years, but will retain the vice-presidency, with offices in Victoria. The management of the plant will pass to J. Humbird, son of the president of the Weyerhaeuser Company, which is heavily interested in the Victoria Lumber & Manufacturing Company. Mr. Humbird now has the management of three mills at Sand Point, Idaho, the total capacity of which is about equal to that which the new plant at Chemainus will have. It is estimated that it will take about a year to assemble and erect the machinery.

Salt Lake Basin Water Power Is Subject of Publication

"The Water Powers of Great Salt Lake Basin," a paper prepared by Ralf R. Woolley, hydraulic engineer of the United States Geological Survey, is in the editorial department of the survey and will be issued early in 1924.

The paper sets forth all the present power developments and the undeveloped power sites, and gives a brief resume of the growth of power development in the basin as compared with the growth over the United States. The market for power, with the probable demand for meeting the industrial growth, the relation of power to irrigation and industry and the functions of the Federal Power Commission in the development of power resources also are discussed. The paper will be illustrated.

Mr. Woolley will prepare a similar report on the Green River and its tributaries. The maps of Green River Canyons are under preparation for publication.

Seven hundred children of the employees of the Puget Sound Light & Power Company, Seattle, Wash., were the recipients of Christmas gifts from nine trees laden with holiday presents and cheer. Under the direction of Norwood W. Brockett, vice-president of the company, and Mrs. Brockett, a force of company officers did the purchasing and R. W. Clark, sales manager, attended to the decorations. Music was furnished by the company band, both for concert and dancing, and the affair was greatly enjoyed by the more than 2,000 persons who attended. A. W. Leonard, president of the company, officiated as Santa Claus.

Will Make Additions to Honolulu Electric Power System

The expenditure of $1,250,000 for improvements to the power plant and distributing system of the Hawaiian Electric Company of Honolulu, has been sanctioned by the board of directors of the company. The company will also expend an additional amount of $500,000 for an office building in Honolulu.

Plans call for the raising of the capacity of the company's generating capacity by 35,000 kva. A new 12,500-kva. steam-turbine and two additional 826-hp. boilers with modern auxiliaries will be installed and a reinforced concrete smokestack, 226 ft. high, will be erected.

New power lines in the sugar cane plantations and other industrial districts of Oahu are to be built. The company has entered into a three-year contract to furnish power for operating the lines of the Honolulu Rapid Transit Company and extensions of the power distribution system in Honolulu alone will cost $150,000. Plans also call for the erection of a new substation at Waikiki.

Light and power is to be extended to the Atrisco district of New Mexico immediately by the Albuquerque Gas & Electric Company. Orders have already been placed for some of the equipment as work will commence within the next fortnight.

Railroad to Pit River No. 3 Site Has Been Completed

The railroad which the Pacific Gas and Electric Company has been constructing in Shasta County, California, and which is to be used in connection with its Pit River development, has been completed. This new road, which is a branch of the company's Bartle-Pit No. 1 line, runs from Cayton Valley for a distance of five miles to the diversion dam site for Pit No. 3 and then five and one-half miles farther down the river to the power house site.

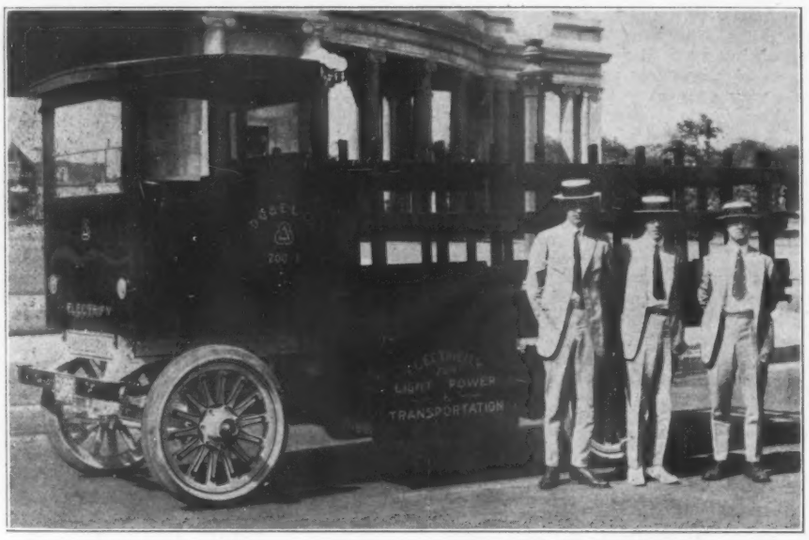
The site for this new 100,000-hp. Pit No. 3 plant is 33 miles by rail from Bartle, the eastern terminus of the McCloud River railroad which connects with the Southern Pacific lines at Sisson. With the completion of this new road, work will immediately begin on the construction of the power house.

The electrically operated steam shovels used in the building of the railroad will be used for excavating for the power house. The camp to accommodate 400 men has been completed at the Pit No. 3 site, and is about the same size as the camp at the dam site five miles up the river.

A tunnel approximately five miles in length, running from the dam site to the power house, has been driven in for a distance of 1,000 ft. from the eastern portal. This tunnel, which is really a combination of three tunnels, will be approximately three times as long as the diversion tunnel at the Pit No. 1 plant.

At a regular meeting of the Denver, Colo., section of the American Institute of Electrical Engineers the general subject of heavy railway electrification was treated in detail. The historical development of railway electrification was discussed by H. B. Barnes, consulting engineer of Denver. F. C. Hanker, general engineer of the Westinghouse Electric & Manufacturing Company, Pittsburgh, Pa., spoke on "Recent Developments and Future Possibilities" and H. D. Randall, district manager of the General Electric Company, spoke on "Electrification Economies."

Residents of the Silver Lake and Marysville districts in the State of Washington now have electric service for the first time due to the extensions which have just been completed by the Puget Sound Light & Power Company. These extensions also include the towns of Alderwood Manor and Granite, service to these latter places having been established during the summer.



The first, of a fleet of electric vehicles, to be purchased by the Denver Gas & Electric Light Company, now the Public Service Company of Colorado, was recently put in service. The company representatives standing beside the new truck from left to right are: Duke Barnett, superintendent of transportation; H. A. Tewksbury, manager of the stores department; and D. C. McClure, superintendent of the electrical department.

Girand Complies with Arizona Diamond Creek Permit

Complying with the requirements placed in the permit issued to him by the state water commissioner of Arizona on Dec. 26, 1922, and disregarding the fact that the Federal Power Commission refused to grant him a license, James B. Girand, of Phoenix, Ariz., on Dec. 18, 1923, started construction work on the Diamond Creek dam on the Colorado River. The extent of the work that has been done is unknown.

Mr. Girand was issued a permit by the State of Arizona stating that construction work must be started before Dec. 25, 1923. This permit was transferred to the Colorado River Engineering & Development Company by Mr. Girand shortly after it was issued to him. A Federal Power Commission license was applied for and was refused pending the decision of Arizona as to whether or not it would ratify the Colorado River compact.

Previous to the time that construction work was started on the dam, Mr. Girand, in the name of the company to which the state permit was assigned, applied to the Arizona water commissioner for an extension of the permit issued in 1922. Upon the recommendation of Governor Hunt of Arizona the commissioner announced that this permit would be denied.

The original application filed with the Arizona water commissioner stated that a dam 300 ft. in height and 1,200 ft. long was to be built at the mouth of Diamond Creek to develop 200,000 hp. The permit that was issued allowed the appropriation of 10,000 sec.-ft. of water.

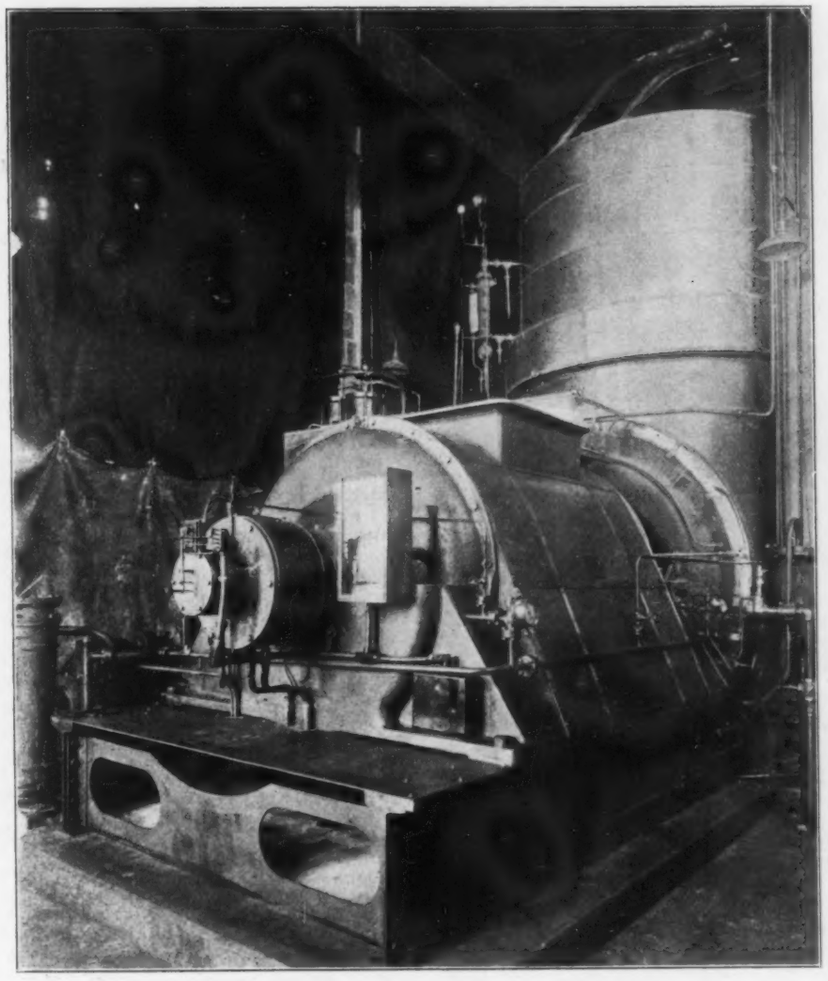
Development of Deschutes Power Site to Be Started Soon

Construction work on the Columbia Valley Power Company's proposed hydroelectric plant on the Deschutes River, near Metolium, Ore., is to be started in the near future according to F. R. Schanck, consulting engineer in charge of field investigations for the concern. It is reported that financing arrangements for the development have been completed and Mr. Schanck has stated that state and federal permits for water rights have been arranged.

It is planned to construct dams and power houses at the junction of the Deschutes and Crooked Rivers and on the Pelton site, six miles below on the Deschutes River. The first two sites will develop over one hundred thousand horsepower, according to the engineer's estimates.

Immediate reconstruction of ten miles of high tension lines will be begun by the Pacific Gas and Electric Company between Nicolaus and Vernon, Calif. This is preliminary to the reconstruction of nearly fifty miles of high tension lines between Colgate Power House and Vernon.

Repairs and improvements to the Telluride, Colo., central station of the Western Colorado Power Company will be made in the near future. The cost of the work is estimated at $15,000 and similar work will be started shortly on each of the other generating plants of the company in that region.



Condenser and generator of the mercury vapor process unit at the Hartford Electric Light Company's plant.

Mercury-Turbine Lowers Central Station Operating Costs

Indicated fuel saving amounting to 50 per cent per kilowatt-hour as compared with high-grade central-station practice, have been- secured- with the initial mercury-turbine installed in the Dutch Point generating plant of the Hartford Electric Light Company, Hartford, Conn., about four months ago, according to a statement made by Samuel Ferguson, vice-president of the company. Mr. Ferguson declared that the mercury boiler and turbine equipment constituted a revolution in the production of electrical energy from fuel.

The mercury boiler and turbine installation operating in the Hartford company's plant is one of two experimental sets manufactured by the General Electric Company from designs prepared by W. L. R. Emmet, consulting engineer of the General Electric Company. The first experimental apparatus was operated in the Schenectady Works of the manufacturer and the set that has been installed in the Hartford generating plant is the first commercial set of its kind ever constructed.

The mercury vapor process involves the vaporization of mercury in a boiler, driving of a turbine by the mercury vapor and the condensation of the exhaust in a condenser where its latent heat is delivered to water and thus used to generate steam at pressure suitable for use in existing steam plants.

The condensed mercury runs back by gravity into the mercury boiler. Thus the mercury vapor acts as a heat conveyor and, at the same time, delivers energy to the mercury turbine. This affords a means by which the temperature range of operation is more than doubled as compared with ordinary steam processes, and the efficiency consequently greatly increased. Means are also provided by which the flue gases are brought to temperatures equivalent to those used in steam processes by being carried through a steam superheater and a feed water heater.

An application of this process on a large scale was built at Schenectady and operated experimentally on many occasions. This equipment was originally designed to give 1,500 kw. from the mercury-turbine but it was never run above 1,050 kw. Of the 1,050 kw. so delivered in these tests, 800 constitutes net gain as compared with a 200-lb. steam process operating with similar firing conditions. With such a performance of the mercury-turbine, and with the steam produced used as in the best power stations, this result is equivalent to about 11,300 B.t.u. from fuel per kilowatt-hour. Eighteen thousand B.t.u. per kilowatt-hour is considered extremely good in large existing steam stations.

Lawyer's Opinion Halts Sale of Seattle Power Bonds

Issuance of $2,500,000 worth of Seattle, Wash., municipal light department bonds under an ordinance passed last May has been blocked by an opinion from Chester B. Masslich, New York bond attorney, engaged by the city to pass on all municipal bond issues. Mr. Masslich stated that the ordinance did not comply with the law governing utility bond issues.

The first effect of the ruling will be to halt the sale of $200,000 worth of bonds sold recently to local brokers, who were also given an option on $800,000 more of the bonds. Anticipating the sale of the bonds, the light department has been using current earnings to finance construction work and extensions properly charged to capital account, counting on reimbursement from the bond proceeds.

The adverse opinion is based on the state law requiring utility bond ordinances to specify the system or plan proposed and estimated cost of construction to be so financed.

The ordinance is one under which $11,000,000 worth of bonds has been issued for building a 50,000-hp. hydroelectric plant on the Skagit River.

San Francisco Utility Takes New Public Relations Step

The Pacific Gas and Electric Company took a new step in the field of public relations, with the issuing on Dec. 15 of "P. G. and E. Progress," a magazine directed toward consumers, stockholders and employees. A total of 150,000 copies of the initial issue was printed and mailed and it is expected that the final circulation will be 400,000 copies.

"Progress" contains information concerning the company which will be of direct interest to consumers as well as stockholders and employees. Practically all electric and gas utilities have organs which are circulated among these latter two classes but few if any have attempted to include consumers.

The first issue of "Progress" is an 8-page miniature newspaper printed on letter size paper. It is well illustrated and contains a wealth of information about the company.

A new double-drum electric hoist has been ordered for use at the No. 1 workings of the Iron Blossom mine, located near Eureka, Utah. It will be installed on the 200 ft. or tunnel level, and will replace an air hoist which has been in there for a long time. The new hoist will be good for any depth up to 2,000 ft. At present the deepest work in that part of the Iron Blossom is 1,100 ft. Recent developments in that part of the Iron Blossom property have made new and better hoisting equipment necessary.

The East Bay Water Company, Oakland, Calif., has filed application with the California State Railroad Commission requesting authorization for the completion of its Upper San Leandro project. This project involves construction of a dam and reservoir at an expense of $3,000,000 and will also provide storage for 13,600,000,000 gal. of water and an outlet tower, outlet tunnel, filtration plant, transmission lines and other features.

Fault Locater Put to Test on Power Company's Lines

Exhaustive tests designed to demonstrate the versatility of the Lundin fault locater were recently conducted on the lines of the Pacific Gas and Electric Company in San Francisco, Calif., by A. A. Barbera, of the Special Service Sales Company, Pacific Coast agents for the device. Similar tests were also conducted on the lines of the Puget Sound Power & Light Company in Seattle, Wash., and the Southern Sierras Power Company at Riverside, Calif.

The device, which is comparatively new on the Pacific Coast, is designed to detect and locate faults on distribution systems. Included among the characteristics that are claimed for the device are the abilities to analyze faults, to test circuits daily, to detect faults on live circuits, on buried systems, on direct current networks and on twin cables. It is also designed to detect grounds and short circuits on overhead and underground lines and to detect live crosses, leaky insulators, and tree grounds.

A fairly complete analysis and description of the device was contained in the 1923 Underground Committee report of the National Electric Light Association.

Similar sets are now being used by the Southern California Edison Company, the Los Angeles Gas & Electric Company, the Bureau of Power and Light of the City of Los Angeles and the City of Pasadena.

Los Angeles Council Votes More Money for Appraisal

Following the signing of a petition by 30,000 Los Angeles, Calif., citizens, calling for a referendum vote on the Los Angeles city council's ordinance setting aside $25,000 for the securing of an appraisal of the electrical system of the Los Angeles Gas & Electric Company, the city council has repealed that ordinance. In its place the council has passed two ordinances, one calling for the payment of $5,000 to the California State Railroad Commission for work already done in evaluating the local company's system, and the other providing for an expenditure of $45,000 as the balance to be paid the commission for appraisal work to be done in the future.

The State Railroad Commission has already done some work on the securing of an appraisal of the company's electric system in Los Angeles and the costs of this have been set at $5,000. The commission has reported that the entire cost will be $50,000 or over.

World's Largest Hydroelectric Unit Placed in Service

The world's largest hydroelectric power unit was placed in commercial operation at Niagara Falls, Dec. 18, before a delegation of prominent electric power men and government officials, in the new power plant of the Niagara Falls Power Company on the American side of the Niagara River.

The generating unit is a 65,000-kva., 12,000-volt, 25-cycle vertical waterwheel driven generator, driven by a 75,000-hp. hydraulic turbine, with a total weight of over 1,750 tons. It is the first of two such units now being installed by the General Electric Company and the William Cramp & Sons Ship & Engine Building Company of Philadelphia. The station, when completed, will have a rated capacity of 454,000 hp.

The unit just installed uses 3,500 sec.-ft. of water with an efficiency of at least 93 per cent. Using the same amount of water formerly used by seven 5,000-hp. units, it delivers energy equivalent to the output of fourteen such units.

Consider Denver Christmas Sales Campaign Successful

Members of the Electrical Cooperative League of Denver, Colo., have expressed themselves as being deeply gratified in the results of the Christmas campaign which has just been completed by that organization. The sale of appliances and the extensive use of new and interesting lighting effects, they feel are due to the efforts of the organization.

Considerable space was obtained in the editorial columns of the Denver and suburban papers stressing the idea of "Give Something Electrical" to accompany the five pages of cooperative advertising appearing in those papers just prior to Christmas.

Encouragement was given to the lighting of growing evergreen trees in the yards of Denver residents so as to tie-in with the community Christmas tree provided by the city. The use of small lighting sets with window wreaths to supplant the dangerous use of candles resulted in an additional demand for lighting outfits, according to O. L. Mackell, league chairman.

The British Columbia Electric Railway Company, Victoria, B. C., is asking for tenders from Canadian and United States manufacturers to supply insulators for the new high-tension line, now under course of construction, from the company's Jordan River plant to the auxiliary steam plant at Brentwood, on Vancouver Island. It is estimated that the cost of the insulators will be between $10,000 and $15,000.

The United States Civil Service Commission has announced that applications for a position as assistant electrical engineer in a power plant in the Philippine Islands will be received until Jan. 15. The duties are to act as technical adviser on all electrical matters and to take actual control of testing and designing work of power plant electrical equipment and to assist the mechanical engineer in charge of the steam plant.

A franchise has been granted to the Utah Power & Light Company to construct, maintain and operate electric light and power lines in Arimo, Idaho.

The city of Longview, Wash., will soon have additional electric energy for both commercial and domestic use. A new power plant of 1,500-kw. capacity and mounted on a barge for the Long-Bell Lumber Company is now being completed and will soon be in operation. This plant was originally intended only for the use of the lumber company but being of greater capacity than at present required by that firm, the excess will be made available for the use of citizens of the town. Oil will be used as fuel for the boilers of the new plant.

Cheyenne Company Places Boiler and Equipment in Service

The Cheyenne (Wyo.) Light, Fuel & Power Company has just placed in operation a new 600-hp. boiler. In addition to the new boiler installation, other improvements just completed include, new overhead coal bunkers of 400-ton capacity, track hopper for unloading coal, electrically-operated hoist from the track hopper to the bunkers, electrically-operated belt for distribution of coal in the bunkers, and overhead ash storage. The new boiler represents the latest type of equipment of this kind, including stoker and other automatic devices that make for operating efficiency. It replaces a 400-hp., hand-fired boiler.

Work is also progressing on the installation of a new turbine generator which is expected to be placed in service about March 1. The new generator will have a capacity of 1,800 kw., and will replace two old-style engine-driven generators of a combined capacity of about 600 kw.

The present capacity of the company's plant is about 3,000 kw. The new generator will increase this to more than 4,500 kw., thus providing generating capacity to take care of new demands and increases due to natural growth.

To Ship Oak Grove Turbine Unit Before Middle of Month

The 35,000-hp. reaction turbine built for the Oak Grove plant of the Portland Railway, Light & Power Company by the Pelton Water Wheel Company of San Francisco, Calif., has been assembled in the plant of the manufacturer and has been torn down for shipment to the power company. Shipment will be made early in January.

F. G. Robley, superintendent of water power plants, and A. Drill, chief engineer of power plants for the Portland Railway, Light & Power Company, recently visited the San Francisco plant of the manufacturer to make shop inspections of the new turbine. The turbine has been designed to operate under a head of 857 ft. and will be the highest head reaction turbine ever built.

The Westinghouse Electric & Manufacturing Company has been awarded the contract for the first unit of the new steam plant to be installed by the Los Angeles Gas & Electric Company at tidewater about twenty miles outside of the city. This plant is intended to be ultimately of 200,000-kw. capacity and will cost several millions of dollars. The first unit will run about $750,000 in cost for generating equipment. It is expected to have the plant completed early in 1925.

C. Kirk Hillman Company, a Seattle, Wash., concern dealing in electrical machinery, recently moved to a new building especially constructed for the firm at 3201 First Avenue South. The new building has many labor-saving devices, including large traveling cranes for handling heavy machinery. The firm has been in business in Seattle for 10 years, and represents the following manufacturers: Wagner Electric Manufacturing Company; Electric Machinery Company; Roth Brothers & Company, and Roller-Smith Company.

Construction Problems Told in Illustrated Booklet

"Saving Sierra Snows," a 16-page booklet describing the construction problems and activities in connection with increasing the capacity of the Twin Lakes Reservoir of the American River project of the Western States Gas & Electric Company, has recently been published by The Holt Manufacturing Company, Stockton, Calif. The booklet, which is well illustrated, tells of the methods used in enlarging the reservoir and also in increasing the size of the El Dorado ditch that carries water to a new power house on the South Fork of the American River, near Camino.

Holt "Caterpillar" tractors were used in grading and in hauling wagon trains during the construction work in connection with the development. Part of the booklet is devoted to the explanation of the part that these tractors played in the construction work.

Heavy Pipe Fittings Are Being Welded Electrically

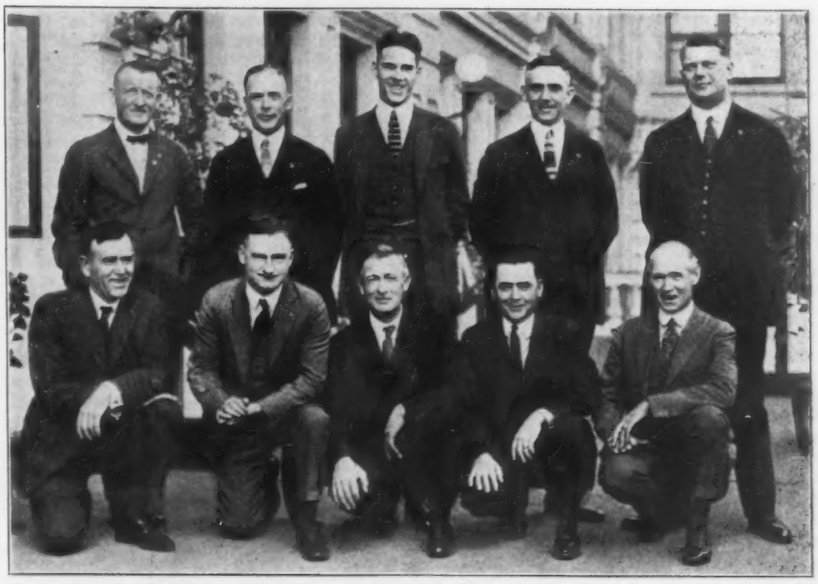
The Northwestern Electric Company is having its complicated pipe fittings for its new Portland, Ore., plant welded by the electric arc process by the Coast Culvert & Flume Company of Portland. The fittings, which are for the circulating water system from the condensers of the new plant, run from 28 in. to 48 in. in diameter, and are made of metal from 1¼ in. to ⅜ in. thick. The flanges on the ends of these fittings are manufactured complete. In the past, fittings of this type have been made from cast iron, and this is the first time that this type of work has been attempted in the Northwest from plate steel electrically welded.

These fittings have been inspected every few days by the engineers of the Northwestern Electric Company and pronounced satisfactory. It is conceded that investment and service in this class of construction will be more economical than the type of construction formerly used for this class of work.

Bids will be received by the City of Tacoma, Wash., until Jan. 21, for the purchase of $4,000,000 of bonds designed for the construction of the Lake Cushman power project. Bidders are to state at what rate of interest they will take the bonds at par. The city cannot pay more than 6 per cent interest and a somewhat lower rate is anticipated in this case.

Orders have been placed with the General Electric Company by Hitchcock & Tinkler, Inc., for twelve electric locomotives for construction work in the new Moffat Tunnel in Colorado. This is the first transportation equipment requisitioned for use in connection with the driving of the pioneer tunnel. Electric power lines have been brought to both portals by the Colorado Power Company.

Construction work on the Oak Grove unit of the Portland Railway, Light & Power Company has been nearly stopped due to the coming of winter weather. Nearly all of the construction camps on the upper Clackamas River have been closed.



The Transportation Committee of the Pacific Coast Electrical Association, in convention at San Diego, Dec. 7. They are (top row, left to right) P. Ducker, Southern California Edison Company; C. D. Weiss, chairman, San Diego Consolidated Gas & Electric Company; J. S. Moulton and O. M. Simpson, San Joaquin Light & Power Corporation; and W. O. Fairbanks, Southern California Telephone Company; (bottom) F. C. Rotsel, Bureau of Power and Light, Los Angeles; S. B. Shaw, Pacific Gas and Electric Company, San Francisco; Andrew Swanson, Bureau of Power and Light, Los Angeles; J. M. Wainscoat, San Joaquin Light & Power Corporation; and R. A. Johnson, Bureau of Power and Light, Los Angeles.

Transportation Committee Holds Second Meeting of Year

Transportation problems, labor saving devices and methods in connection with transportation equipment of public utility companies, electric trucks, and special machinery, gave the Transportation Committee of the Pacific Coast Electrical Association, in conclave in San Diego, Calif., Dec. 7 and 8, much to discuss and report upon. In its second meeting of the year the committee, a sub-committee of the Stores and Purchasing Committee of the Pacific Coast Electrical Association, made first reports on the organized work for the year. C. D. Weiss, chairman, entertained the committeemen for this occasion.

Present in the San Diego meeting were: W. H. Fairbanks, superintendent of shops and vehicles, Southern California Telegraph Company, Los Angeles; J. S. Moulton, engineer, J. M. Wainscoat, superintendent of transportation, and O. M. Simpson, chief clerk of the supplies division, San Joaquin Light & Power Corporation, Fresno; R. A. Johnson, superintendent of transportation, Andrew Swanson, general shop foreman, and F. C. Rotsel, general line foreman, Bureau of Power and Light, Los Angeles; S. B. Shaw, automotive engineer, Pacific Gas and Electric Company, San Francisco; and P. Ducker, superintendent of transportation, Southern California Edison Company, Los Angeles.

The University of Washington Engineering Experiment Station has recently published Bulletin No. 17. The bulletin is entitled "Transmission Line Design." Part I is devoted to the mechanical features of design and was prepared by Frederick Kurt Kirsten, associate professor of electrical engineering. The bulletin is well supplied with charts and tables.

New Street Lighting System in La Jolla Put in Service

The long curved highway through La Jolla, suburb of San Diego, Calif., was lighted up for the first time by its new lighting system on Dec. 15. Following the contour of the sea shore, winding its way through this community of homes and community buildings, the new lighting system made a white ribbon of light seen clearly from the heights of the Biological grade, two miles north of La Jolla.

The La Jolla lighting system, the first of a number planned by residents of that community, runs along the state highway between San Diego and the north. The lights are set on 14-ft. concrete standards, staggered all along the white concrete highway. Each lamp is of 400-cp. intensity, and is equipped with the special glassware to direct the light to the street.

Because the lights illuminate the state highway, over which thousands of motorists pass day and night, the system is kept lighted all night long. The La Jolla system was the second unit of San Diego's new street lighting program to be completed. The Broadway system was turned on for the first time the week previous.

The opening up of the new Wellington oil field north of Denver, Colo., has necessitated the making of two railroad extensions into that territory, one of which will be electrified. The Public Service Company of Colorado is now engaged in making a survey for a transmission line to be extended from Fort Collins.

The Hunt Electric Company, after a year in a downtown office building, has opened a retail electric shop at 1408 Stout St. in Denver, Colo. The Eden washing machine and America cleaner are being featured by the company.

Meetings

Los Angeles Orphans Guests of Local Electric Club

The Electric Club of Los Angeles, Calif., held its annual Christmas party for the Kiddie Koop Orphan Home on Dec. 24, before the largest gathering of its kind. It was considered by all those present that it was the best and the finest in the club's history, while the entertainment which had been arranged for the special benefit of the children under the guidance of James G. Loomer, was exceptional and proved the hit of the day. St. Nicholas was there in the person of Paul D. Howse and created quite a furore amongst the youngsters when he came through the fireplace which had been arranged for the occasion.

The big ballroom of the Biltmore Hotel was full, some 500 people being present, while the arrangement of the Christmas tree, decorations and lighting effects, made the room exceptionally attractive. The tree was placed at the center of one end of the room and was effectively decorated and flood lighted from both sides. Behind the tree and to the right was a homelike setting with a huge fireplace, which was flood lighted in red, the whole setting adding extensively to the spirit of the occasion.

Amendments to Washington Power Measure Sanctioned

Two amendments to the proposed Erickson superpower measure, to be presented to the voters of the State of Washington in 1924, were recommended and agreed upon at a meeting of members of the Washington State Superpower League, held in Seattle recently. The amendments are designed to make the bill more suitable to local municipal ownership advocates.

The first amendment states that the power districts, that would be created under the proposed Erickson measure, might not condemn the hydroelectric plants and lines of cities now owning and operating their own systems. The second provides that smaller units than counties might band themselves into power districts.

Appoints Pacific Coast A.I.E.E. Convention Committee

Plans for the 1924 Pacific Coast Convention of the American Institute of Electrical Engineers to be held at Pasadena, Calif., during the week of Oct. 13, are already well under way. Several important papers have been arranged for and plans have been laid to have those in attendance at the convention visit the new 1,000-volt laboratory of the California Institute of Technology. According to present arrangements the program this year will be of national importance.

The arrangements committee for the convention has been appointed by Harris J. Ryan, president of the Institute. This committee will make all of the local plans for the convention. The personnel of the committee is as follows: R. W. Sorensen, chairman, Los Angeles; O. F. Johnson, secretary, Los Angeles; M. O. Bolser, Los Angeles; E. E. F. Creighton, Schenectady; H. B. Dwight, Denver; E. R. Hannibal, Spokane; C. R. Higson, Salt Lake City; W. C. Heston, San Francisco; C. W. Koiner, Pasadena; J. A. Koontz, Jr., Palo Alto; C. A. Lund, Tacoma; F. W. MacNeill, Vancouver; S. G. McMeen, Pasadena; L. W. W. Morrow, New York; E. F. Pearson, Portland; E. R. Stauffacher, Los Angeles.

Street Railway Men Entertained by San Diego Club

The street railway contingent of the San Diego Electric Club had its day, Dec. 11. At that meeting Sam Mason, superintendent of equipment of the San Diego Electric Railway, who brought with him 30 street railway officials, among them Claus Spreckels, the vice-president and general manager, was responsible for having the meeting turned over to the railway men.

The new type street car which San Diego is to have beginning the first of the year, was the main topic of discussion. Musical numbers added to the day's program.

In its last meeting in 1923, on Dec. 18, with Al May as chairman, Judge Lacey Jennings of San Diego spoke on "The Constitution and the Supreme Court." Judge Jennings gave an intensely interesting discussion of the criticism being directed at the Supreme Court and of its justice or injustice.

The Electric Club of Seattle, Wash., on Dec. 8 held its annual dinner and dance at the Seattle Yacht clubrooms, one of the most successful and enjoyable affairs the club has ever held. Harry Martin, president, presided at the dinner, and the following members of the club helped to make the event a success: J. R. Wells, Fobes Supply Company, chairman; Charles Smutz, Western Electric Company; Jim Stewart, Pacific States Electric Company; Harry Byrne, Jr., North Coast Electric Company; and Dick Cole, Economy Fuse Company.

W. H. Talbott Elected Employees' Association President

William H. ("Bill") Talbott, superintendent of the electric meter department of the San Diego Consolidated Gas & Electric Company, was recently elected by a two to one majority to the presidency of the employees' association of his company. Mr. Talbott is a member of the national meter committee of the National Electric Light Association, and of the technical and executive committees of the Pacific Coast Electrical Association. He was chairman of the meter committee of the Pacific Coast Electrical Association last year. In the San Diego Consolidated Gas & Electric Company he is superintendent of the electric meter department and will be the tenth president of the employees' association.

Mr. Talbott was the association's first president, and was again elected its president for the third year of its existence. Since 1919 W. H. Ellison has held the office, as a rule uncontested.

San Francisco Club Entertains Sixty-five Children

Sixty-five children from the San Francisco Nursery for Homeless Children, and a considerable number of children who are being cared for by the Salvation Army were the guests of the San Francisco Electrical Development League at the organization's annual Kiddies' Day held in the gold ballroom of the Palace Hotel on Dec. 17. Five hundred members and friends of the league were also present to witness the coming of Santa Claus.

Presents, which the children had asked Santa Claus to bring them, were delivered to the guests following a musical entertainment presented by students of a local dancing teacher. The entrance of Santa Claus was particularly satisfying to the children who watched the Christmas visitor come from a small house that had been erected upon the stage.

The Kiddies' Day program was arranged by Arthur E. Rowe, of Garnett Young & Company.

Santa Claus brought presents to the children at the San Francisco Electrical Development League's party, from the log cabin built on the stage.

Manufacturer, Dealer and Jobber Activities

The Waage Electric Company, Chicago, Ill., has announced that on Jan. 1, 1924, it will move its offices, including sales, purchasing and accounting departments, from 12 South Jefferson Street, Chicago, to the company's new factory at 5100 North West Ravenswood Avenue in the same city.

The Ingersoll-Rand Company, New York, N. Y., has recently secured an order from the New York Edison Company for a 35,000-kw. surface condenser. This condenser is to be installed under a 35,000-kw. General Electric turbine at the central station company's Waterside Station No. 1. The condenser is of the standard Ingersoll-Rand external cooler design with single pass water circuit.

The Westinghouse Electric & Manufacturing Company has announced that voltages in excess of 1,000,000 were made recently to perform spectacular phenomena at the high voltage laboratory at Trafford City, Pa. Flashing zigzag arcs and high potential surges were included in the demonstrations, which were witnessed by members of the American Institute of Electrical Engineers and some visiting engineers of other countries. The feature of the demonstrations was the forming of a 42-ft. arc at a potential of 1,000,000 volts. This was the largest controlled arc ever made artificially and it set a world's record for laboratory work.

The General Electric Company, Schenectady, N. Y., has designed a new type of cutout for fusing primary circuits of transformers up to 7,500 volts, 100 amperes maximum. This is known as the Type E, form B, General Electric expulsion type fusible primary cutout. This cutout has many new features which are said to increase its electrical efficiency, mechanical strength, convenience and safety of operation and life.

The Triumph Electric Heating Corporation of southern California has been organized to take over the manufacture of the electric radiator of that name invented by Edmund B. Lennig, heating engineer, formerly of San Francisco and Oakland. A. M. McLellan is president; Arthur Hess, vice-president, and Charles McKinnis is secretary and treasurer. Mr. Lennig is superintendent and engineer of the organization. Also affiliated with it is George Peck, heating engineer.

D. W. Columbus and **Leslie Lyons** of the **Red Lodge Electric Company,** Red Lodge, Mont., have recently completed the construction of an electric sign on which they are endeavoring to secure a patent. The sign presents an alternating shadow lighting of the characters superimposed upon it. The large finished model of the sign has been installed on the building of the electric company and the small model is being sent to the patent office at Washington, D. C.

The Illinois Electric Porcelain Company, Macomb, Ill., has issued a new catalog and handbook of pole line insulators. This book will be furnished on request to the manufacturer.

F. W. Rust & Company, Inc., Seattle, Wash., electrical contractor-dealers, formerly located at 218 Columbia Street, have moved to larger quarters in the Campbell Building, Fourth Avenue and Columbia Street.

The F. W. Wakefield Brass Company, of Vermilion, Ohio, has announced that it has put on the market a new porcelain enameled unit for kitchen lighting. Several new features, it is claimed, are incorporated in this fixture. The socket is attached to the ceiling by a die-formed metal strap, and the wiring connections are made to this skeleton. The combination canopy and holder, which is of heavy porcelain enameled steel, is then slipped into place and is held firmly and snugly against the ceiling by two bayonet screws. Two lugs and a single set screw hold the glassware.

The Ward Leonard Electric Company, Mount Vernon, N. Y., has increased its line of Vitrohm cast iron type of variable rheostat plate by adding new sizes of plates. The field now covers from a 5½-in. square to a 14-in. square plate. They also include in the line a larger plant in standard size, 15 in. x 24 in. The round type of plates are made in sizes from 5-in. diameter to 19-in. diameter. On these plates a straight same ampere capacity of resistance throughout is used for motor armature control—a two to one taper to eight to one taper for generator and motor field control.

George Cook, who for the past eight years has been city electrical inspector of El Paso, Texas, and who recently took over the Rogers Electric Company at 315 Texas St., El Paso, has moved to new and enlarged quarters at 600 North Stanton Street and has changed the firm name to C. & C. Electric Company. Mr. Cook will carry on a general electrical contractor-dealer and retail business.

Ernest V. Beck and **James W. Ryall,** both prominent for a number of years in the jobbing business of Denver, Colo., are the incorporators of a new electrical supply house which will shortly make its appearance in Denver, bringing the total of electrical jobbers up to nine. Mr. Beck until recently was manager of the Central Electric Supply Company and previously was associated with the Hendrie & Bolthoff Manufacturing & Supply Company and the Poindexter Supply Company, both in Denver. Mr. Ryall will not sever his connections as manager of the electrical department of the Mine & Smelter Supply Company until Jan. 1. He formerly served as purchasing agent of the Western Light & Power Company and was also associated with the Mountain States Machinery Company. A location for the business has already been secured in the new Barnes Building, 1414 Glenarm St., but it is believed the store will not be ready for occupancy until the first of the new year. The new company, which was incorporated for $50,000, will be known as the B & R Electrical Supply Co.

The Johns-Pratt Company, Hartford, Conn., has issued a bulletin on Noark Universal Service switches which will be of interest to all contractor-dealers and those concerned with construction work.

The Electric Material Company, with offices in San Francisco and Los Angeles, Calif., and Seattle, Wash., has announced that after Jan. 1, 1924, it will not represent the American Copper Products Corporation.

The Valley Electric Company, St. Louis, Mo., has issued a new catalog of Valley motors which contains full information concerning the line made by the company. This catalog will be furnished upon request to the Pacific Coast office of the company, 429 Rialto Building, San Francisco, Calif.

During the Christmas rush in 1922, P. H. (Percy) Booth, of the Edison Electric Appliance Company, found business coming in so fast and furiously that he had to use his own automobile to bring heating devices from his company's factory at Ontario, Calif., to Los Angeles dealers. Percy said that he had 2,000 lb. of equipment on his car at the time he struck the noble pose shown above.

Personals

D. C. Green, formerly vice-president and general manager of the Fort Smith Light and Traction Company of Arkansas, has been named vice-president and general manager of the Utah Power & Light Company and vice-president of the Utah Light & Traction Company. Mr. Green succeeds S. R. Inch, who has resigned to accept an important position with the Electric Bond & Share

D. C. GREEN

Company in New York. Mr. Green has had a wide experience in the management of electric and gas utilities. As an electrical engineer, having graduated from Purdue University in 1908, he went from college to his first position with the San Diego Consolidated Gas & Electric Company. His ability was soon recognized, and he was promoted to the position of manager of the Oregon Power Company and the Everett Gas Company of Everett, Wash. Early in 1915 Mr. Green came from the Northwest to Salt Lake City as manager of the Salt Lake division of the Utah Power & Light Company. He left Salt Lake City in the fall of 1916, and since that time has been associated with various utilities in a managerial capacity. In addition to his ability gained through wide experience in the management of utilities, Mr. Green is particularly well qualified to handle the duties of his new position, due to his former association with the Utah Power & Light Company and his familiarity, therefore, with that company's operations and policies. The change will not sever Mr. Inch's connection with the Utah companies, since he remains a vice-president and director of both.

J. B. Hassett, who for some years has been an assistant in the purchasing department of the Great Western Power Company, San Francisco, Calif., has resigned to become western manager for the Charles R. De Bevoise Company, manufacturers of specialties. Mr. Hassett's territory will include the five western states and he will have his headquarters at 140 Geary Street, San Francisco.

W. H. Talbott, superintendent electric meter department, of the San Diego Consolidated Gas & Electric Company, has been elected president of the employees' association of the company. The association has approximately one thousand members and is organized for insurance, education and social purposes.

A. D. (Dent) Slaughter, manager, Allied Industries, Inc., San Francisco, Calif., is on a trip to the Northwest, combining business and pleasure. He spent Christmas with relatives in Idaho and will shortly leave for the East where he will visit the factories which his company represents.

C. E. Heise, San Francisco district manager of the Westinghouse Electric & Manufacturing Company, has recently returned after five weeks' absence in the eastern states where he attended the American Railway Association and the district managers' meeting of the Westinghouse Company. He also made a survey of electrical conditions in eastern centers.

F. J. McEniry, field representative of the Electrical Cooperative League of Denver, at the invitation of several of the leading architects in Pueblo, Colo., visited that city early in December to assist wherever possible in the improvement of electrical layouts and to establish further contact with the electrical industry in that city.

Governor William E. Sweet, of Colorado, has appointed a special committee to arrange for a celebration to mark the fiftieth anniversary of admission of the State of Colorado to statehood and also to commemorate the completion of the Moffat tunnel. The electrical industry will take an active part in this celebration and Clare N. Stannard, vice-president and general manager of the Public Service Company of Colorado, Denver, Colo., is ranking member of the committee.

Earle M. Marsh, for some years salesman in the domestic applications department of the Facific Gas and Electric Company, San Francisco, Calif., has resigned to join the force of the E. A. Wilcox Company, San Francisco. Mr. Marsh will have charge of appliance sales.

Ray W. Murphy, Pacific Coast manager; **Paul R. Prietsch,** manager of miniature lamp sales for the Pacific Coast; **R. S. Prussia,** illuminating engineer, of the Westinghouse Lamp Company, San Francisco, Calif., and **Harry A. Grace,** manager of advertising for the same company, with headquarters at New York City, have just completed a tour of the Pacific Coast states. Stops were made at Los Angeles, Portland, Seattle, Spokane, Butte, Salt Lake City and San Francisco. At Salt Lake City a merchandising show was presented to Westinghouse Lamp Company jobbers and salesmen. Motion picutres and lantern slides were used and thorough instruction was given in the use of advertising matter.

John William Lieb, of New York City, has been awarded the Edison Medal of the American Institute of Electrical Engineers. This medal is awarded annually for meritorious achievement in electrical science, electrical engineering or the electrical arts.

F. W. Roller, president of the Roller-Smith Company of New York City, is at present in San Francisco en route to the Orient.

Charles L. Hill, sales manager of the California Wire Company, Orange, Calif., was a recent visitor to San Francisco. Mr. Hill was in San Francisco in connection with the appointing of the Baker-Joslyn Company as the wire company's distributor for the Pacific Northwest and northern California territories.

A. A. Barbera, western representative of the Special Service Sales Company, 202 Russ Building, San Francisco, and 502 Delta Building, Los Angeles, Calif., has just finished a tour of the Pacific Coast territory. This company is Pacific Coast distributor for Morganite Brush Company, Inc.; Anchor Webbing Company; Minerallac Electric Company and for the Hanses brand of electrician's gloves and lineman's pull-over gloves.

L. R. Brown has been appointed manager of the transformer division of the new central station department of the General Electric Company, Schenectady, N. Y.

Henry Grant, superintendent of the Puget Sound International Light & Power Company, Everett, Wash., has been appointed superintendent of the interurban lines of the Puget Sound Light & Power Company between Seattle and Tacoma and Seattle and Everett. Mr. Grant will take up his new duties on Jan. 1, 1924.

J. N. Addis, San Francisco branch manager for the California Wire Company, has been called to the company's factory at Orange, Calif., to fill a more important position there.

C. A. Maydwell, president of Maydwell & Hartzell, Inc., has just been elected president of the Foreign Trade Club of San Francisco. Mr. Maydwell has been active for several years in the foreign trade of San Francisco and the

C. A. MAYDWELL

West and has himself been an important exporter. He has for several years represented manufacturers of electrical goods, specializing on construction material and transmission and distribution supplies. His connection of over twenty years with the export situation places him in excellent position to guide the activities of the Foreign Trade Club along the lines of constructive effort.

Harry V. Patton, salesman in the Martinez district for the Pacific Gas and Electric Company, has resigned to enter the electric heating engineering business for himself at that point. Mr. Patton will do a general sales engineering business in electrical equipment for both domestic and industrial purposes.

W. Veit has been appointed by the Valley Electric Company, St. Louis, Mo., to represent that firm in California. Mr. Veit will have offices at 429 Rialto Building, San Francisco, and from that point will direct the company's activities throughout the state.

Gray E. Miller, sales manager of the Sewickley Electric Company, Sewickley, Pa., is making a survey of the Pacific Coast with relation to business development possibilities. He is accompanied by **H. M. Thomas,** Oakland, Calif., western representative of the company.

Frederick N. Dodge, formerly sales manager of George W. Smith & Company, Inc., Philadelphia, Pa., has joined the staff of The Society for Electrical Development. At one time sales promotion manager of the Fairbanks Company, New York, Mr. Dodge was more recently connected with The Dort Motor Car Company of Flint, Mich., first as assistant advertising manager with the factory organization and afterward as sales manager of the Cleveland and later the Philadelphia distributing houses.

Ernest V. Beck, president of the newly organized B & R Electrical Supply Company of Denver, Colo., has been identified with the industry in that city for over 20 years and, with the exception of the first few years as a journeyman, all the rest of the time has been with various supply houses. For over 15 years he was with the Hendrie & Bolthoff Manufacturing & Supply Company. When he resigned as a salesman of that firm in 1919, he became secretary and treasurer of the Poindexter Supply Company and two years later

ERNEST V. BECK

organized the Central Electric Supply Company as a branch of one of the Salt Lake City jobbing houses. Now, through his association with James W. Ryall, another prominent figure in the supply business, Denver's ninth electrical jobber has been established. Mr. Beck is a former member of the Advisory Board of the Denver Electrical Cooperative League.

Mrs. Alma E. Hunt, home economist of the Southern Colorado Power Company, Pueblo, Colo., recently won the $50 prize offered by the Postum Cereal Company for a recipe using one of the products of that company. Several thousand women competed in the contest and the award of judges was confirmed by the staff of Good Housekeeping magazine.

Bayley Hipkins, owner of the Coast Construction Company of San Francisco, Calif., recently paid a visit to Tacoma and Seattle. Mr. Hipkins came north to complete studies of the proposed Lake Cushman hydroelectric power project to be developed by the City of Tacoma, with a view of submitting a proposal for construction. When the proposed municipal project was in its infancy Mr. Hipkins began a study of it and is now completing his investigation.

W. H. McGrath, vice-president, **J. B. Howe,** general counsel, and **D. C. Barnes,** manager, of the Seattle division, Puget Sound Power & Light Company, accompanied by Mrs. Barnes, have left Seattle for Boston and New York on business for the company.

E. P. McCaulley and **Max M. Eckerman** have recently opened a new store at 5723 Santa Monica Boulevard, Los Angeles, Calif. They will do a general retail electrical supply and contracting business.

Rey E. Chatfield, formerly manager of the Electrical Cooperative League of British Columbia, is now assistant to the vice-president of the American Seedless Raisin Company, San Francisco, Calif.

W. H. Whiteside, of the Westinghouse Electric & Manufacturing Company, Pasadena, Calif., was a recent visitor to San Francisco .

E. R. Alton, C. H. Seybert, A. Van de Graaf and **Milton G. Kemp,** of Ogden, Utah, and **L. T. Mayhew,** of Los Angeles, Calif., have organized and incorporated the Globe Electric Manufacturing Company, which concern will be located in Ogden. The capital stock of the new company is $250,000 and the above named men will be directors for the first year. The company is organized to manufacture electrical appliances and to do a general electrical supply business.

Paul A. Douden, formerly of the sales staff of the Western Electric Company, Inc., Denver, Colo., has organized a manufacturers' agency in that city under the name of the Globe Electric Supply Company with headquarters at 1620 Wazee St. Accounts already scheduled by the new firm are those of Federal Electric Company, Redtop Electric Company, Strait & Richards, Standard Electric Stove Company, Betts & Betts and the Joslyn Manufacturing & Supply Company of Chicago. Complete stocks of the last named company will be warehoused in Denver and Salt Lake City. The firm will cover Colorado, Utah, Wyoming and New Mexico.

F. G. Robley, superintendent of water power plants, and **A. Drill,** chief engineer, of the Portland Railway, Light & Power Company, Portland, Ore., have been in San Francisco, Calif., inspecting the 35,000-hp. Pelton Reaction Turbine which has been built for their company by the Pelton Water Wheel Company, of San Francisco.

C. V. Schneider, one of the leaders of the electrical industry in Sacramento, has been elected president of the Electrical Contractors' and Dealers' Association of Sacramento. "Cass" Schneider started in the electrical business with the Nebraska Telephone Company, of Omaha, Neb., in 1888. Working under one management he occupied positions variously with the Midland Electric Company, the Universal Electric Company and the Western Electrical Supply Company. In 1897 he moved to Sacramento and joined the firm with which he is now connected and which was then known as the Sacramento Electrical Engineering & Supply Company. In 1904 this firm was incorporated under the

C. V. SCHNEIDER

name of the Electrical Supply Company and Mr. Schneider was elected president, which office he has since held. In addition to his other work he was for three years president of the California State Association of Electrical Contractors and Dealers and is active in the affairs of the Sacramento Valley Electrical Association and other associations.

D. J. McCormack, H. E. Popp and **H. T. Porter,** formerly connected with the hydraulic turbine department of the Wellman-Seaver-Morgan Company, of Cleveland, Ohio, have joined the engineering and sales staff of S. Morgan Smith Company, York, Pa., builders of water power equipment. Mr. McCormack and Mr. Popp are located at the main office and works at York, Pa., while Mr. Porter becomes manager of the branch office at 76 West Monroe Street, Chicago, filling the vacancy caused by the recent death of John C. Temple.

Obituary

Ralph Gilman, electrical engineer in charge of design of alternating current turbine-generators for the Westinghouse Electric & Manufacturing Company, Pittsburgh, Pa., died suddenly in Los Angeles, Calif., where he had been for some time in an endeavor to regain his health.

Trade Outlook

San Francisco

The holiday season closed with extremely satisfactory sales result. Retail buying in many lines exceeded all previous records and stocks were well disposed of. Electrical appliances were in strong demand and jobbers' stocks on some lines were entirely exhausted. Express shipments to cover the emergency were also absorbed and buying to fill in will necessarily be heavy.

Banking conditions are reported as being satisfactory and loans at a low point. There is money for sound industrial and commercial development.

Building continues in record volume and is well distributed as to class of structure.

General expressions from leaders in important lines of industry and trade are optimistic and the outlook for 1924 is said to be exceptionally good.

Los Angeles

The electrical retail business has been better this year than ever before in this section. While the business was slow in coming, it came just before Christmas with a rush so that local retail merchants enjoyed a very prosperous Christmas season.

Electrical wholesalers experienced the best appliance year in their history, and on a number of appliances they were unable to fulfill the demand. The sale of wiring devices, wire, conduit and supplies fell off somewhat, due to consumers curtailing their buying prior to the first of the year. As the construction business keeps up, there is every indication that this is only temporary and that business in those lines will be excellent early in the new year.

Manufacturers report great activity, while several large orders for extremely heavy equipment have been placed recently. The sale of radio continued, with a much better Christmas than was ordinarily expected, particularly in this line.

The building permits issued for the first fifteen days of December totaled 2,753 with a valuation of $14,063,671 as against 1,958 permits valued at $4,575,768 for the same period last year, an approximate increase of 100 per cent in the permits and 350 per cent in valuation.

Seattle

Building, highway and bridge construction throughout the Northwest is reported more active at present than it has been at this season for some years past. Seattle building work is continuing steadily, with work progressing on several large projects, and residence construction unusually active for this period of the year.

In production, sales and shipments, lumber mills of Washington have set a new record, according to advice from the West Coast Lumbermen's Association. This industry is expected to show little depression during the winter, with only a very slight lull for the holiday period.

Electrical jobbers, as a whole, report sales volume very well sustained, with every indication of continuance until after the first of the year. Prices are holding, and stocks ample to meet all requirements. Shipments from the eastern factories are generally satisfactory, and collections are reported from fair to good.

Retailers report an encouraging volume of Christmas sales, with a heavy run on household appliances such as percolators, toaster stoves, lamps and small gift appliances. Electrical novelties and radio equipment moved well, and electric Christmas tree decorations were in demand.

Salt Lake City

The Chamber of Commerce of Salt Lake City recently conducted a five-day drive for funds to be spent in advertising the city of Salt Lake and the state of Utah during 1924. The bogie of $75,000 was over-subscribed by more than a thousand dollars and there were many thousands of subscribers of small amounts, rather than a few of very large amounts.

The excellent financial condition of Salt Lake City and Utah is reflected in the small amount of rediscounts in the Federal Reserve Bank. These, at the last report, amounted to approximately $10,000,000 as compared with $40,000,000 in 1921.

The sugar companies of Utah and Idaho are in good condition this year, with none finding loans necessary, with the exception, perhaps, of short loans to meet beet pay days.

Building activity has somewhat decreased, due to the advent of the winter season.

Christmas business in general showed a substantial increase over last year's figures, and electrical gifts were more in evidence than ever before.

Spokane

Spokane has enjoyed a very prosperous year, with a general improvement realized in every line of business.

The lumber industry is in good condition, considering the season, most of the twenty-five woodworking plants reporting outputs considerably higher than those of last year.

The Washington wool production is the best since 1920, amounting to 4,500,000 lb. This year 500,000 sheep and 300,000 lambs are reported, one of the reasons for the increase in the local packing business. One packer is shipping meat to the Orient and to Germany, as well as to widely scattered domestic points.

Spokane building permits during November amounted to $181,000, about 20 per cent higher than for November, 1922, due to the open winter. The improvement of 10 to 20 per cent realized this year in electrical jobbing brings conditions back to normal in that line.

Local retailers of electrical appliances have had a splendid holiday season, with an unusually high demand.

Dividends approximating $3,000,000, including profits of leasing concerns and gold dredging, distributed during 1923 by metalliferous mining corporations of the Inland Empire, including Washington, Idaho, British Columbia and Oregon, indicate a fairly profitable year in the mining industry.

A recent strike at the Old Dominion mine in Stevens County has aroused interest again in eastern Washington as a future mineral territory.

Portland

Construction work is still going on at a good pace throughout Portland, there having been no severe weather recently. This class of work, together with the factories, is absorbing all the skilled men available. There are, however, several thousand unskilled workmen idle, largely from the farms and logging camps. The situation is not considered serious.

In the lumber industry the annual clean-up period is at hand, the cut having fallen in a week from 27 per cent to 17 per cent above normal. The lumber men are closing a year of great activity and good profits.

Of the conditions in Oregon as he recently saw them, B. C. Forbes of the Philadelphia Inquirer wrote that there is hardly a fundamental industry of the state but what is prospering today, and that Oregon was never in a stronger position, from a business standpoint, than it now is.

Denver

Every day for the past month, the realization has become greater that northern Colorado is destined for an oil boom which some experts declare will be the equal of any experienced on the North American continent. A deep gas well brought in early in November drilled itself into the oil sands with an initial flow of 500 barrels and this amount has increased to nearly 5,000 barrels a day. Preparations are now being made to drill about 50 wells in the Wellington district, west of Fort Collins.

Business in northern Colorado has prospered as a result of this activity and Denver supply houses are being called upon for goods which 60 days ago were destined for holdover until the building boom again opened in the spring.

The seasonal curtailment in building, public improvements, transportation, and agriculture has created a moderate surplus of labor, principally of the unskilled variety. However, a considerable portion of this surplus is being absorbed by the Moffat tunnel project, the Lakeside power plant near Boulder, and the newly opened oil field. There is a shortage of metal miners in some sections.

Christmas purchasing, which got off with a slow start, proved superior to all expectations. Never before in the history of the mountain region were so many electrical appliances sold for gifts. Percolators, curling irons, and waffle irons led the demand and all jobbers' stocks of these articles were exhausted several days before Christmas. Toasters and all forms of portable lamps proved exceedingly popular, according to electrical dealers and the department stores.